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In Four Sections
Section 1

FACILITATING CONTROL OF—

Maintenance Labor

Research Overhead

Operating Departments

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FINANCIAL MANAGEMENT OF—

Municipalities — Churches

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What Can You Do About Depreciation Now?

by WILLIAM Y. ARMSTRONG

SINCE the 1954 Revenue Act was passed, much has been written and discussed about the supposedly liberalized depreciation methods which were incorporated in that act. In June 1956, the regulations pertaining to depreciation were released. These regulations, known as Treasury Decision 6182, and others have clarified some of the issues. Still more recently, other decisions have been released on other phases of this subject, the latest one on September 18, 1958, relating to general rules for disallowance of deductions, including a pertinent section on capital expenditures. Also, since 1954 and particularly in the last two or three years, we have had the benefit of experiences in the examinations of returns. However, despite the wealth of material thus available, the cloudy areas are still numerous. Some of them will be treated in this article. We will consider only the new features of the 1954 Act and regulations pertaining to depreciation. Many of the basic procedures and principles remain unchanged.

Depreciation Methods Recognized by 1954 Act

The most outstanding feature is that of depreciation methods. Prior acts provided for the methods to be treated in the regulations. The 1954 Act recognizes the methods in the code, with only the amplification and applications of those methods handled in the regulations. The code now recognizes four specific methods as follows:

1. Straight-line.
2. Declining-balance, with not more than twice normal rate.
3. Sum-of-the-years digits.
4. Any other consistent method which provides, during the first two thirds of the life of the property, accumulated allowances at the end of any year no greater than that resulting from the use of the double declining-balance method.

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In addition there is a catch-all clause in the current regulations which covers still other methods. Section 1.167 (b) provides that—

> "Methods previously found adequate to produce a reasonable allowance under the Internal Revenue Code of 1939 and prior revenue laws will, if used consistently by the taxpayer, continue to be acceptable under Section 167(a)."

Examples given of such methods are unit of production, under appropriate circumstances, and the declining-balance method with a rate not more than 150 percent of the applicable straight-line rate. It should be kept in mind that these are recognized *methods* of computing depreciation. Taxpayers still have a good deal of latitude in the manner in which such computations may be made, such as summary or lapse schedule form, by accounts, by items with property ledgers or tabulating cards.

Further, as to method, taxpayers are now permitted to change from double declining-balance to straight-line method any time, without permission of the commissioner. This is a new angle and is considered to be one of the most liberal features of the 1954 Act. Heretofore a taxpayer had to get permission from the commissioner before changing methods. Now, that permission need be obtained only on changes other than from double declining-balance to straight-line. There is a possible trap in this liberal feature however. In changing from double declining-balance to straight-line, the taxpayer must base the straight-line computations on the remaining useful life of the property at that time and must recognize salvage value at the time of the change.

Status of Salvage Value in Depreciation Calculations

One of the new features in the 1954 Act that portends trouble to taxpayers and Government alike is the extent to which it will be required to give recognition to salvage in the depreciation calculations. Salvage has always been mentioned in prior acts and regulations, requiring taxpayers to use as a depreciation base the cost less salvage of the asset. The present regulations mention salvage more specifically, however. In respect to straight-line computations, this element is referred to as ". . . cost less its estimated salvage value." In the double declining-balance treatment, it is assumed that there will always be some undepreciated cost remaining. The regulations here state, "While salvage is not taken into account in determining the allowance under this method, in no event shall the asset be depreciated below a reasonable salvage value." Under the sum-of-the-digits treatment, the regulations use this language in describing the depreciation base, "cost . . . reduced by estimated salvage."

The question is—why the emphasis on salvage value now and how specifically will it be considered? Well, the purpose of the depreciation provision is to provide a deduction from gross income to arrive at net taxable income. If property items are depreciated at rates which consistently result in nominal residual values at the end of their useful lives and are then sold as second-hand units for use by another company at figures far in excess of those residual values, capital gains will result. Normal income during the life of the property will, in effect, have been understated. I imagine that the Government feels that such transactions, if occurring frequently and where they are of some significance, are contrary to the intent of the income tax law because they distort normal income. I believe—though it is purely a personal opinion—that this is what is motivating the Government's emphasis on salvage.

The condition has existed for many years in respect to automotive equipment and certain process equipment which has high components of salvageable metals, such as zinc, lead, copper etc. Machine tools are another class of property which, in recent years, has had high salvage value at the end of usefulness to a taxpayer. The condition has become accentuated in the last ten to fifteen years by the active recognition of obsolescence by some companies and the demand for the older machine tools by smaller companies. In the war periods, it was particularly acute, largely because of the ready availability of used machines as compared to the long delivery periods required for new machines. In earlier years, the salvage value of machine tools was nominal. Whether that condition will ever prevail again is conjectural. High salvage value is beginning to appear in other classes of equipment, due to the industrial expansion here and abroad and to the availability factor.

A mechanical rubber goods company was examined recently. Among the transactions was the sale of a Banbury mixer for $21,000. This was the first time in the long history of this company that it had sold a Banbury mixer for use by another company. The machine was acquired in 1925 at a cost of $14,250. Capital additions were made to the machine in 1933 to the extent of $2,500. The net book value at the time of sale in 1956 was about $150. A capital gain of $20,850 was indicated. The taxpayer was using a straight-line basis in computing depreciation, using a life predicated on his experience in the use of the equipment. Based largely upon this one transaction but with the authority of the depreciation regulations pertaining to salvage value, the revenue agent insisted that hereafter this taxpayer must recognize salvage by deducting an estimated salvage value from the original cost on all equipment. I do not believe this agent is applying the principle of salvage value with under-

standing of its intent. The sale of this machine was obviously an abnormal transaction. The taxpayer was not in the business of selling machinery. He had no further use for the mixer because of the changing nature of his business. It was an unusual circumstance that an interested buyer was found who had immediate use for the machine. As a basis for presenting his story to the revenue agent, the taxpayer analyzed the retirements from his machinery and equipment account for the ten years following World War II.

REALIZATION OF SALVAGE FROM PROPERTY RETIREMENTS

	GROSS ORIGINAL COST	REALIZED FROM SCRAP OR SALE TO OTHERS	% SALVAGE TO GROSS COST
1948	$ 9,337	$ 1,381	
1949	19,980	8,490 (1)	
1950	16,276	13,040 (2)	
1951	5,979	1,461	
1952	43,139	3,582	
1953	3,432	2,409	
1954	31,476	8,796 (3)	
1955	14,468	2,632	
1956	30,269	22,326 (4)	
1957	1,964	7,978 (5)	
	176,320	72,095	41%
Abnormalities	24,961	53,540 (See Footnotes)	215%
Residual	$151,359	$18,555	12%

Footnotes on Abnormalities:

(1)	Sale of calender to machinery rebuilder for resale	$ 7,000
(2)	Sale of calender for rebuilding by another user	12,000
(3)	Sale of strainer to reclaiming company	6,650
(4)	Sale of Banbury mixer to used machinery dealer	21,000
(5)	Sale of 18 presses and calender for use by another company	6,890
		$53,540

EXHIBIT 1

The results of this analysis are shown in Exhibit 1. It will be noted that the liberty has been taken of identifying some of the transactions as abnormalities due to unusual circumstances. Eliminating the abnormalities, the total amount realized from the sale of retired property over this 10-year period was only 12 percent of original cost. This result does not consider the decline in the value of dollar. It is my opinion that it was not the intention of the regulations to apply salvage value adjustments in cases in which there is such a nominal effect on normal income and where the transaction is not usual with the company.

Moreover, there are other techniques by which salvage value may be taken into account, when it is a material factor, other than deducting it from the cost of the asset. The Regulations under Section 1.167 (a)-1 (c) provide among other features that, "Salvage value must be taken into account in determining the depreciation deduction either by a reduction of the amount subject to depreciation or by a reduction in the rate of depreciation, but in no event shall an asset be depreciated below a reasonable salvage value." This, in my opinion, provides at least two opportunities for taxpayers to recognize salvage value, where it may be a material factor, without deducting it from cost at the beginning of the depreciation process. Except for relatively short-lived assets, such as automobiles, it is usually almost impossible to forecast what the salvage value of an asset will be fifteen to twenty years hence. Where the experience of a taxpayer shows that there will be a reasonable expectation of getting about 10 percent of the original cost of a group of assets as salvage value, the basic depreciation rate or life used may be adjusted to reflect this. For example, if on certain classes of assets you are using a ten-year life, under the circumstances cited you could use an eleven-year life. Theoretically, this would retain in the asset account at the end of the ten-year useful life, approximately 10 percent of the original cost, enough to offset the estimated salvage.

Another method within the frame-work of the same regulation would seem to me to be more realistic and reasonable. Assume that an asset has a twenty-year normal life and an uncertain salvage value. Ordinarily, in such a situation, the remaining useful life of this asset would be reviewed at the end of the fifteenth year as a basis for any adjustments which might be warranted. Would it not be more realistic and still within the intent of the regulations to consider a nominal, say 5 percent, salvage value at the beginning of use of the asset, and then at the end of the fifteenth year, when the remaining life is reviewed and possibly adjusted, reckon with the salvage value? A taxpayer would certainly be in a better position to make an intelligent estimate of the salvage value then, rather than fifteen years earlier. At that time, the remaining life could be adjusted or the depreciation stopped, according to the circumstances. A further statement in the same section of the regulations lends weight to these conclusions. The statement is, "if there is a redetermination of useful life . . . salvage value may be redetermined based upon facts known at the time of such redetermination of useful life." Further weight to this procedure is given by U. S. Court of Appeals in the Bertrand W. Cohn case (September 26, 1958) which affirms that salvage value may be adjusted at or near the end of the useful life of an asset when such data is more definite.

The Elusive Consideration of "Useful Life"

The useful life of property is the foundation of the depreciation process. The 1954 Regulations have refined the concept of "useful life," bringing to bear as one writer puts it, the "tenure of ownership." The current regulations provide for this modern concept stating, "the estimated useful life of an asset is not necessarily the useful life inherent in the asset, but is the period over which the asset may reasonably be expected to be useful to the taxpayer. . . ." In other words, it is no longer a matter of how much usefulness there is in the asset but how much usefulness there is in the asset to the particular taxpayer. This concept ties in with the further refinement of this point in the regulations providing that, among factors to be considered in the determination of the useful life period, are, "taxpayer's policy as to repairs, renewals, and replacements." The Hertz Corporation cases (July 17, 1958) before the U. S. District Court confirms that the 1954 Code intended to change the concept of useful life from total life to useful life to the taxpayer. It would be prudent to keep in mind, in applying this principle, that a taxpayer should have some pretty sound evidence in the way of experience or definite plans for replacement, if he expects to get the benefits of this viewpoint.

In connection with consideration of the next new feature in the 1954 Act, provisions relating to obsolescence, it is well to examine the terminology used. The code provides that the depreciation deduction will include a reasonable allowance for obsolescence. The regulations refine this terminology to provide for "normal obsolescence," thus following the pattern of prior regulations. Normal obsolescence is obsolescence which can be reasonably foreseen and which will shorten the useful life of the asset. Abnormal obsolescence is obsolescence which occurs suddenly and cannot be reasonably foreseen. Losses arising from this latter cause are treated in another section of the code and should not be confused with losses accruing from normal obsolescence, which are a part of the depreciation deduction. The new feature on this point is that the current regulations permit the taxpayer to re-estimate the effect of normal obsolescence on lives or rates previously estimated. In this era of changing processes and materials, this could be an important feature in favor of the taxpayer.

Allowance of Higher Depreciation on "Used" Items

There seems to be some vagary connected with the next feature of recent change, that of an allowed declining-balance rate on used property of 150 percent of the normal applicable straight-line rate. This is covered by Revenue

Ruling 57-352. This is mainly a clarification of the 1954 Act which caused some confusion or misunderstanding, although there is one new feature. Here, roughly is what this ruling declares. First, methods of computing depreciation are methods of accounting and a change in the methods of accounting may be made only with the commissioner's consent. Second, the catch-all provision previously quoted under Section 167 (b)-O(b) provides that other methods will be allowed, if used consistently, and cites the declining-balance method using 150 percent of the normal rate as an example. Ruling 57-352 provides, based upon these two foregoing statements of principle, that for taxable years ending after December 31, 1953, the declining-balance method of depreciation using 150 percent of the straight-line rate may continue to be used on new or used property acquired prior to January 1, 1954, and on used property acquired after December 31, 1953, provided that the procedure had been established within the frame-work of the then applicable regulations.

These features follow standard principles that have been in effect for a long period of time. The new one feature presented by this ruling is that, for taxable years ending after December 31, 1953, taxpayers may use a declining balance depreciation rate of 150 percent of the normal straight-line rate on used property, provided such a procedure was elected in the first year in which the property was subject to depreciation by the taxpayer. This prevails regardless of the methods employed for other depreciable property. The ruling may be of benefit to some taxpayers. However, I think a word of caution might be in order here. It is my understanding that, should a taxpayer elect to take 150 percent declining-balance depreciation on eligible used property under this ruling, he may later change to straight-line or any other method only upon specific approval of the commissioner. This is different from the allowed basis under the 1954 Act, previously noted, which now permits a change from double declining-balance method to straight-line method without approval of the commissioner.

1958 Developments: Small Business; Capital Expenditures

The Small Business Tax Act of 1958 adds still another feature to the depreciation story. The title of this act is somewhat of a misnomer in that it is applicable to all businesses, large and small. This act contains a provision adding Code Section 79, which allows taxpayers to take additional depreciation in the year of acquisition of assets. The provision is applicable to taxable years ending after June 30, 1958 and is limited to new or used tangible personal property acquired after December 31, 1957 having a remaining useful life of not less

than six years and a cost of not more than $10,000 or, in the case of a joint return, $20,000. Within these limitations, a taxpayer may use as a deduction in the first year 20 percent of the cost of the property plus the first year's annual provision resulting from any of the methods recognized by Section 167 and applied to the balance. Although this provision was obviously aimed at giving some relief to small business, it is equally available to all business. Whether large business will take advantage of this remains to be seen.

Regulations covering capital expenditures were adopted September 16, 1958, and issued under Treasury Decision 6313. By indirection, these regulations specify what expenditures will not be allowed as deductions. A good part of the test deals with costs expended in connection with depreciable property and ties in to the text of the depreciation regulations in regard to repairs, rehabilitation and upgrading of property. There is nothing particularly new about the principles stated. Such expenditures are not allowed as deductions if incurred:

1. For improvements which increase the value of the property.
2. For making good the exhaustion of property for which an allowance has been made in the form of depreciation.
3. For repairs or changes to property which prolong its useful life or adapt it to a different use.

These are the same general principles as were prescribed in prior regulations. Some of the vague words, such as "materially," "ordinary," "incidental" and "appreciably" have been deleted and the tie-in with depreciation methods, I believe, has been clarified. One item in this new regulation which makes no direct mention of depreciation but which must or will concern many companies is this:

> "The cost of good-will in connection with the acquisition of the assets of a going concern is a capital expenditure."

In the present era of mergers and acquisitions, this item is bound to be an important one and may affect the depreciation results. In some mergers and acquisitions, it will be found or claimed that, in acquiring a property or a business, some intangibles were involved. This will result in a lower depreciation base than may have been expected. There is some evidence that the Internal Revenue Service is examining many mergers and acquisitions along these lines after they have been consummated and claiming that part of the purchase price or exchange basis was for an intangible asset not subject to depreciation. Even if such claims are not supported and are later dropped, they are a source of annoyance and expense to the taxpayers. I have found that, if the facts in such

cases are studied either before the deal is consummated or before the first income tax return is filed, to determine whether or not intangibles exist and, if so, to what extent, the taxpayer is in a much more sound and solid position when the return is examined.

Supporting Depreciation with Adequate Property Records

Now that the new features of the current depreciation regulations have been reviewed briefly, it is in order to consider how the company can get the most out of its depreciation deduction within the frame-work of these regulations. I have in mind the maximum to which the company would be entitled were its returns and procedures thoroughly examined by the Internal Revenue Service. I appreciate that frequently, in a revenue agent examination, compromise settlements are made among several issues. If depreciation is one of those issues, the basis of settlement may not be exactly the same as it would have been had depreciation been the only issue. I would like to assume an ideal situation in which depreciation is the only issue. In such a situation, the agent would ordinarily be limited to passing judgment on the reasonableness of the depreciation claimed and on compliance with the regulations regarding the basis, eligibility, and methods.

Compliance with regulations can ordinarily be determined on the basis of facts. Reasonableness of the amount of depreciation claimed, however, is a matter of opinion. In judging the reasonableness of a depreciation claim under examination, the revenue agent or engineer has only broad guides to follow, such as the effective depreciation rate claimed compared to that in use in comparable companies or in the industry, ratio of depreciation reserve to gross cost, fully depreciated assets in use, consistent capital gains on property retirements, statistical evidence from the property records as to property growth and retirements, etc. If a taxpayer has no more evidence than these broad yardsticks to support his depreciation claim, he is not in a strong position to get the most out of his depreciation deductions.

It should be unnecessary to recount that the basis of depreciation is the cost of the depreciable property and its estimated useful life. This condition prevails, regardless of the method of depreciation calculations elected or the type of records used. Section 1.167 (a)-7 of the Regulations describes the common types of records used, such as item, group, classified, or composite account and prescribes particularly the procedures for accounting for retirements and losses under each form of record. Assuming that the company has a record of the total dollars spent to acquire its plant property, segregated at least by major

accounts—such as buildings, machinery and equipment, automobiles—the next step is to decide whether any further breakdown of these dollars by units of property might be desirable to get the most out of the depreciation deduction.

I think it might be advisable at this point to consider uses of property records for other than support of the Federal income tax depreciation deduction. Such other uses need not be controlling but it is best to give some thought to such matters, rather than to limit consideration to the tax application and later find that a multiple-purpose application could have been arranged by a few modifications. The other applications I have in mind are uses of such property costs and depreciation data for property custodianship, cost accounting, return of investment, insurance valuations and proof of loss, etc., segregated by buildings, departments, divisions or plants.

At this stage, I have found it most desirable to give some serious objective thought to the form and content of the property records as an economical tool to meet multiple applications. For instance, if income tax depreciation is the only requirement, a brief identifying description of the property components by accounts on a convenient card or ledger form might suffice. For guidance in insurance buying and proof of loss, a rather complete bill-of-material description of each component of property, showing location by buildings, may be required. For cost accounting purposes, there is more latitude on the descriptive or identifying data, but you would want locations by departments or operation sections designated on each of the components. It is frequently necessary to have the working tools—the ledgers and possibly cards—in somewhat condensed form but supplemented by information in working papers for any supporting data required. No set of general rules can be laid down. Each case has to be weighed and decided on its own merits and upon the circumstances.

Early in the development of property records deliberate consideration should be given to the key question of the extent to which the company wants to control property cost and depreciation by units. It would be unsound and unrealistic to say that either unit control or group control is best for all companies. The preferable method varies with the nature of the property and the operation. Many companies, such as insurance companies or department stores, have a large portion of their depreciable property in furniture consisting of many pieces of duplicate or similar items. The same condition prevails to some extent in garment factories, with large numbers of duplicate or similar sewing apparatus. Normally, under such circumstances, it is not desirable to consider a unit type of control on each piece of property in such businesses. However, in most manufacturing plants, a large portion of the depreciable cost will be found in build-

ings and in the machine units and their accessories. For such property components, a unit control is ordinarily the most desirable. Also found in manufacturing plants will be the usual complement of piping, wiring, general factory equipment, tools, etc., which can most economically be controlled by groups in total dollars by year of acquisition.

It is a problem to decide what property will be controlled by units and what by groups. Any time spent on this feature will be rewarding. Too much time and detail on the otherwise noncontrollable components will cause the perpetuation of such records to become an unnecessary burden. This situation was illustrated in a recent case. The property, a manufacturing plant, consisted of both controllable and noncontrollable components. Property records and tabulating cards had been developed from purchase records and invoices. After a few years of such procedures, it was found that more than 25 percent of the records pertained to noncontrollable property comprising not more than 10 percent of the cost of the total plant. For example, there were pages and pages in the tabulating summary for individual cafeteria chairs and tables at $15 to $35 each but only one card (one line of the summary) for "batch mixing equipment $254,000." Obviously, in this case, incomplete consideration had been given to the controllable vs. noncontrollable feature of property items when the records were being developed. The ideal situation in a manufacturing plant is to get 80 percent to 85 percent of the property cost under unit control and to allow the remainder of the cost to be accounted for in several reasonable groupings.

When considering what portions of a plant property are to be controlled by units and what parts by groups, it would be well to examine the regulations on gains or losses on retirements (Section 1.167(a)-8). This subject is too extensive to treat here, but it should be considered when selecting a group or unit form of record. There are definite limitations in group control in the matter of recognizing gains or losses on retirements.

Fundamental to getting the most out of the depreciation deduction is an adequate property inventory. Once the company has decided on the uses, content and form of the record, there remains the problem of deciding whether to start with the existing accounting data and compile the records from such historical information or to start with an inventory of the existing facilities and reconcile that record with the accounting data. It has been my experience, without exception, that the soundest and most economical method is to start with an inventory of the facilities and reconcile that inventory with the accounting record. Such an approach permits a sound application of the con-

trollable vs. noncontrollable principles as to itemization, includes all property in use with its location in the plant, and permits the deletion from the accounting records of any items no longer in use or retired. This process also permits a positive identification and tie-in of costs from the accounting records, which will form the basis of the depreciation calculations.

Evidencing Remaining Useful Life

Of all of the features going into property records in support of depreciation, it is my opinion that the consideration given to the useful life of the property is the most important. As previously mentioned, the current regulations provide that "the estimated useful life of an asset is not necessarily the total useful life inherent in the asset, but is the period over which the asset may reasonably be expected to be useful to the taxpayer." This principle prevails whether the company is using unit, group or composite records. It is obvious that, for many reasons, taxpayers frequently are claiming rates based upon tradition and blind guesses. Such taxpayers are in an indefensible position if the reasonableness of their depreciation deduction is challenged. In some cases I have known, they are not claiming as much as their property experience would justify. This condition is particularly true where average rates are applied against total account balances.

One factor that impresses me greatly on this point is the tremendous improvements which have been made in industrial machinery generally in the last ten years. Improvements in methods, design, materials, and controls developed during the war period are now embodied in modern machinery. Since then, many other materials, alloys and controls have been developed and incorporated in such machinery. All of this adds up to obsolescence at an accelerated pace. Prior to 1938, the effect of obsolescence on the useful life of plant property, buildings as well as equipment, was nominal. Many lives and rates now used are based upon such conditions. In fact, the former Bulletin F giving suggested depreciation rates, which has been a guide for so long, was predicated upon such conditions.

All of this emphasizes the desirability of making a close examination of the useful life of facilities in line with the "economic changes, current developments within the industry," and, "policy as to repairs, renewals, and replacements." The regulations also provide that, "the estimated remaining life may be subject to modification by reason of conditions known to exist at the end of the taxable year." Obviously, the results of such a study can best be made effec-

tive if the records are reasonably well broken down to units. I would recommend considerable thought and study on this phase of the matter.

One observation is of considerable pertinence at this point. If the company is using either of the recognized accelerated methods of depreciation (double declining-balance or sum-of-the-digits), I will venture a broad guess that a base rate or life which has been used for average depreciation computations in prior years may not necessarily be acceptable. The double declining-balance regulations specify that the rate . . . "shall not exceed twice the appropriate straight-line rate." The key word here seems to be "appropriate." For instance, if a taxpayer had been using a composite rate of 8 percent on a straight-line basis, it does not necessarily follow that he will be allowed a double declining-balance rate of 16 percent. The regulations provide an opportunity to determine whether or not the normal 8 percent rate is "appropriate." Such a rate might have been appropriate for the mix of long and short-lived property as of a given prior date, but the mix of property acquired in any given year may vary a good deal from that average. In any event and in view of technological changes, it is well to know, realistically, what the estimated remaining life of the company's facilities is.

Records Maintenance; Property Accounting Manual

Once the method of depreciation has been decided upon, the appropriate data regarding rates, lives, dates of expiration, etc., can be embodied into the property records. The manner of perpetuation of the records can make or break an installation. It would be my recommendation to select a perpetuation procedure which would develop provable results with an expenditure of time proportionate to the importance of the conclusion. I have seen many hand-posted records which accomplish little by inclusion of details. I know a few companies which discarded tabulating records in favor of hand-posted data. I think there is a happy medium. Some operations are of a size and nature that do not justify mechanical facilities for perpetuating the records. But, even in such cases, a system of account controls could be established which would control the cost and depreciation on a unit basis without the necessity of hand-posting, except where there is a deduction, change in life, or change in the unit.

In my judgment, where the size and nature of the operation warrants, the ideal form of record for perpetuation purposes is a tabulating card supplementing the property ledger. Depreciation computations can be made and summarized by any of the allowed methods, groupings of property costs by type or

operating center can be readily developed for price trending or verification with the property, and the cards can be put to many other uses really too numerous to mention here.

An essential to the economic and sound operation of a system of property records is a property accounting manual. This may be brief or unabridged depending upon the circumstances. It will provide a uniform understanding of the objectives and uses of the property records, a glossary of terminology, a procedure for recording property changes, a periodic review of remaining lives, and will provide also for an annual report of the property and depreciation transactions. This latter item may seem to be superfluous, but I have seen it become an invaluable tool when depreciation provisions and property transactions were examined three or four years after the event.

One feature which can give strength and authority to such a procedure manual for property accounting is to have it contain a foreword by the president of the company. The foreword could call attention to the fact that the plant properties constitute the largest single item on the company's balance sheet and that, to properly account for, care for, and protect such property requires the coordinated cooperation of all company personnel. The reaction to such a statement of policy is amazingly good.

Both Knowledge of the Law and of the Facts

This summary of the principal features of the current depreciation law, regulations and practices is intended to be of some help to accountants concerned with company fixed asset and depreciation policy. Whether you get the most out of your depreciation deductions within these principles will depend upon your philosophies toward such problems, first, and then the records you have to support your conclusions.

Church Finance and Accounting— Their Relationship to Church "Management"

by WILLIAM S. DANIEL

AN ARTICLE on church accounting by Lowell E. Larson (*Journal of Accountancy*, May, 1957), presented a view of the relation between church finance and a spiritual program which is rather widely held both by ministers and laypeople within the church. This view is essentially that a church program can be divided into two parts, financial and spiritual, and that these parts have no particular relation to each other. The view is expressed most exactly in Larson's quotation of Robert Cashman that, "The more closely a minister comes to a complete transfer of business affairs to laymen, the sooner he will have freedom to give himself wholly to the spiritual guidance of his people."

While these views may seem somewhat philosophical, their impact on church programs has been only too real. Businessmen serving on church boards are quite ready to assume responsibility and authority for church finances and the minister may accept this enthusiastically. As with all new brooms, the new members of the board are inclined to attempt a clean sweep of the financial records. They exhibit the same sharp disapproval of the sloppy and slipshod methods which have been used in the past as Larson did in his survey. Usually this disapproval will be manifested in a proposal for a complete overhaul of church accounting to place it on a "sound business basis."

Ministers, aware that their church finances leave much to be desired, turn the members of the board loose with their blessing, and with what the board members assume to be a *carte blanche* authority. However, after the recommendations are made, the board members may find considerable reluctance on the part of the minister to adopt them. At this point, relations between the two parties may become somewhat strained. The proposers of changes naturally assume that the minister rejects their proposals because he does not understand business, and ministers generally cannot explain why the changes will not work.

Actually, the reason this situation develops is the assumption that financial and spiritual programs can be separated and that business financial methods can

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be applied to churches without modification. Several examples of these will be discussed below but the situation can be illustrated rather easily by taking the case of the minister with a delinquent pledge on his hands. The businessman sees a delinquent pledge and makes every effort to collect it. The minister sees a family which has had financial difficulties and needs to be helped. In this case, how can the two phases of the church be separated?

Significant Differences Between Business and Church Finances

A careful review of the relation between business finances and church finances has shown that in at least five areas there are real differences between the two. These are: contingent and valuation reserves, budgeting, presentation of the balance sheet, working capital, and "bad debts."

Contingent and Valuation Reserves—In a business any monies which a company receives are the property of the company and can be spent as the company sees fit. However, in a church, monies received are spent as the contributor directs. In general, this direction will be implied with the adoption of the church budget, but the budget cannot be assumed to be final. If a church is active, members or groups of members will find new programs that were not provided for in the budget and will exert a considerable amount of pressure on the governing board to have these programs funded.

Again, in business a reserve can be established from pre-tax income to replace worn-out or obsolete capital items and can be established from after-tax income for working capital or business expansion. The conscientious businessman may well insist on contingent and valuation reserves in the church budget. However, since the budget can be changed at any time the congregation desires, these reserve funds are likely to be used for current expenses during the year. The response of the businessman to the evaporation of the reserve account is generally detrimental both to himself and the church.

Most churches have at one time or another set up reserve funds, but, in most cases, these have been designated for new buildings. Reserves taken from general funds have been the exception rather than the rule, and for good reason. The first and most important is that church members contribute their money for current expenses of the church. If large amounts are accumulated in surplus accounts, this is generally assumed by contributors to mean that the church is not in need of all funds collected, and contributions will be decreased. Heavily endowed churches, which would be expected to operate with large reserves, have even found it desirable to contribute funds received from the endowments

to the support of missions and to base their own operations on member contributions. The second and probably equally important reason is that churches have found that, when needed, capital funds can be raised quite easily by a special drive.

Budgeting—The formulation of the business budget is exactly opposite to the formulation of a church budget. The business enterprise will start with a forecast of sales and, by subtracting estimated expenses, will arrive at a profit target. If the estimated costs are considered to be out of line, then cost reduction programs will be undertaken to increase or protect profits. No business will continue to survive with the adoption of unbalanced budgets.

This is not true for churches. The adoption of an unbalanced budget in the church is quite common. Churches begin the year with an estimate of expenses and a realistic estimate of receipts, both from pledges and lose offerings. Even if expenses are considerably in excess of estimated income, it is surprising how often churches will meet the adopted budget. The reason this happens is not clear, and the prospect of ending the year with a deficit has led many businessmen attempting to put church financing on a sound basis to despair of a congregation's sanity. However, the fact that it does happen cannot be denied and must be allowed for as a characteristic of churches in any consideration of church finance.

Presentation of the Balance Sheet.—LeRoy A. Hewitt proposes in his article (*N.A.A. Bulletin*, November, 1958) that balance sheets should be prepared for churches to show assets, liabilities, and fund balances. Although the use of a balance sheet appears completely logical, the utility of assets and liabilities is problematical. At the administrative level, current fund balances are necessary to describe the status of finances and are of interest to the church members, since they reflect funds available for future activities as well as the disposition of prior contributions. However, Hewitt would also have the balance sheet show investments in buildings and equipment. From the standpoint of church administration, a balance sheet showing investments in building and equipment would be most useful in establishing insurance coverage, although the value shown should be replacement value, less depreciation. Otherwise, the listing of buildings and equipment has little utility, as shown below.

Church property is unique in several ways, but of most significance to church finance is the fact that it has extremely limited negotiability. A church is not bought and sold like other real estate and, in many cases where all economic consideration would indicate that it should be sold, even to another church, it is not. Thousands of churches occupy prime business locations in downtown

areas and, in many cases, have small congregations; they remain active, however, because of the dedication of a few faithful members. Church property consists, in this case, of an extremely valuable piece of land and a church building which is almost worthless. At the other extreme is the new church which occupies relatively cheap land but has erected an expensive building. It may be assumed that the building should be shown at cost on a balance sheet. However, cost is a figure with no meaning, since the church could not be sold at that price, even if sold to another church. Its original cost would have to be discounted heavily.

Because of its limited negotiability, church property has no value as collateral. In addition, any lending agency recognizes that, even if it lent a small fraction of the church valuation, it would not foreclose to satisfy unpaid debts. Consequently, although church property is sometimes nominally pledged as collateral, the real collateral is the lender's estimate of the church's ability to repay the loan. If church buildings and equipment are to be reported in the balance sheet, then they should be shown at market value. The membership might be surprised to see a substantial deflation in the value of their contributions when invested in church assets, but the financial position of the church would be clearly stated.

Working Capital—In business, when working capital becomes scarce, the management turns to borrowing, selling securities, discounting of notes, or other means to raise the money. This means of fund raising cannot prevail in the church. When working capital becomes scarce in the church, contributions are the only solution. The church must turn to the people for their support. If the people are unable to render the necessary support, then the activities of the church must be curtailed. The survival of a church program is exactly what the members want it to be by providing the necessary funds for the different activities. Activities in business, however, are not quite so restricted, if borrowing power is maintained, since borrowing may result in a clear financial return. Church organizations, on the other hand, do not exist for financial return.

Uncollectible Pledge vs. Bad Debts—At first glance, the businessman is likely to consider an uncollectible pledge exactly as he would a bad debt. As a matter of fact, there is little similarity. In the case of a business bad debt, every effort will be made to collect it. In addition, the account will be written off the books, and further transactions will be made on a cash basis if at all; more generally transactions will be terminated permanently. However, in the case of unpaid church pledges, there will be little effort to collect and the church will continue

to welcome members with unpaid pledges as part of the church family. A special effort will even be made to make sure that members with unpaid pledges do not harbor a feeling of guilt. Unfortunately, many churches have not paid as much attention to this phase of their accounting as would be desirable. Pledges may be discounted by a certain percentage at the beginning of the year, but then only one pledge account is set up. As new members enter the church, pledges which they make are simply added to the pledge account and are not separated. As a result, an analysis of the pledge account at the end of the year will be misleading.

For example:

If single pledge account is used:

Original pledges	$30,000
Discount for uncollectible pledges	1,500
Pledges collectible	$28,500
Pledges collected	$28,750

If segregated pledge account is used:

Annual fund drive account		*New pledges*
Original pledges	$30,000	$7,400
Discount for uncollectible (5%)	1,500	370
Pledges collectible	$28,500	7,030
Pledges collected	21,550	7,200
Total $28,750		
Actual uncollectible pledges	$\frac{\$8,450}{\$30,000} = 28\%$	$\frac{200}{7,400} = 2.7\%$

The single pledge account would indicate that a 5 percent discount is completely adequate. In reality, as shown in the segregated pledge account, 28 percent of the pledges made in the annual fund drive were uncollectible, and the overall balance was obtained only as a result of new pledges.

A Case — From Budgeting to Auditing

The five items which have been discussed above illustrate some characteristics of church finance which must be taken into account in setting up any accounting procedure. If the procedure is based on church characteristics it will be successful; an accounting procedure based on usual business standards will not be.

The remainder of this article is devoted to a description of procedures used by one church. It will be noted that these are based, to a considerable extent, on church characteristics.

The administrative board is made up of the pastor and stewards of the church. It is the responsibility of this administrative body to make proper and adequate provisions for the financial needs of the church, including ministerial support (i.e., for the pastor and assistant pastors, district superintendent, conference claimants, and bishops), approved items of local expense, world service and conference benevolence, other items allocated to the church by the proper authority, and all obligations assumed at local level. A commission on finance, under the authority and direction of the administrative board, promotes and administers the financial program of the church.

Expenses of each department are estimated by the department and the cognizant committee on the administrative board. Utility cost, insurance, taxes, and church supplies are estimated from past records. After careful consideration by each committee, budgets are presented to the finance committee for approval.

The commission on finance in collaboration with the financial secretary or treasurer, pastor and chairman of each committee, sets up a preliminary budget to be presented to the official board. After review and possible adjustment, a preliminary budget is submitted to the church members for approval. Presentation of a tentative budget serves two purposes:

1. It shows the estimated expenses involved in the proper administration of the church.
2. It shows the necessity for contributions for the church program.

After the adoption of a budget, the church conducts an every member canvass to raise the amount of money which has been agreed to be necessary. Each member of the church is contacted individually and given an opportunity to make a pledge for the support of the church. An every member canvass organization chart is shown as Exhibit 1. Based on the preliminary budget, questions by the

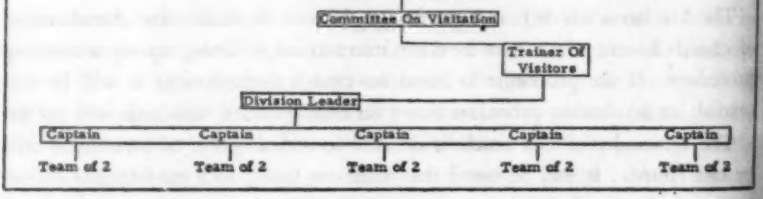

EXHIBIT 1

church members may be asked and answered to their satisfaction. Contributions designated for specific causes may be shown on the individual pledge card (see Exhibit 2).

PLEDGE CARD

DATE:_____ ENVELOPE NO._____

THE METHODIST CHURCH

In loyalty to Christ and His Church, I pledge $_____ weekly, $_____ semi-weekly, $_____ monthly, for the budget of my Church: Local Expenses, Ministerial Support (Pastor, District Superintendent, Bishops, Conference Claimants), General Administration Fund, and World Service (General and Conference Benevolences).

Total Pledge $_____ Signed:_____

Address_____

The following to be filled in by Financial Secretary quarterly:

Amount Received:

First Quarter $_____ Third Quarter $_____
Second Quarter_____ Fourth Quarter $_____
Total $_____

EXHIBIT 2

Upon completion of the every member canvass, the pledge cards are turned over to the finance committee for the determination of expected income. This will be increased by the estimated amount of loose plate offerings and gifts and contributions made by donors that did not sign a pledge card, and will be decreased by the estimated uncollectible pledges. The amount of loose plate offering and gifts may be arrived at by reviewing historical records of these contributions. Pledges are discounted by realistic discount factors. The finance committee, after assembling all the information, and with the help of the pastor, prepares a final budget and presents it to the official board which, in turn, submits it to the church members for adoption.

Adequate records are maintained for reporting purposes. These are:

1. Monthly, quarterly, and annual reports to the membership. These reports consist of receipts and expenditures from the treasurer and the pledge reporting by the financial secretary.
2. Quarterly records for church reporting to district level. The related report covers all activities of the church. The treasurer's report, reflecting all expenditures and receipts, is maintained in district files. All reports reflecting the activities of the church in the quarter and under the supervision of the district superintendent are presented to the membership.

3. Annual records for reporting at conference level. An annual report outlines all church activities, both financial and other, and is prepared by the pastor. Financial reports cover current expenses, benevolences that have been apportioned, and the amount paid.

Contributions placed in the collection plate during the Sunday worship service are removed and counted by the treasurer and his aid immediately after the service. Special care is taken to see that the amount written on the face of the envelope is in agreement with actual amount enclosed. Gifts for special causes are noted on the envelope and receipted for on the treasurer's report upon completion of the count. Cash is removed from the envelopes and deposited in the bank. Envelopes are turned over to the financial secretary for recording on the member accounts.

THE METHODIST CHURCH, ANYTOWN, U. S. A.

To Individual Donor

Pledge: $_____ Per Week: $_____ Semi-Weekly: $_____ Per Mo: $_____ Env. No._____

		1st Sun.	2nd Sun.	3rd Sun.	4th Sun.	5th Sun.	Specials	Designated	Total
1st Quarter	Jan.								
	Feb.								
	Mar.								

Total Pledged: $_____ Total Gifts 1st Quarter $_____

Amount Received: $_____ Name:_____

Balance Remaining: $_____ Address:_____

City:_____

EXHIBIT 3

A copy of the treasurer's cash receipts report is forwarded to the financial secretary for recording in the books of original entry. Although a number of forms may be used for recording individual contributions, the form shown in Exhibit 3 has been found quite satisfactory. This is prepared in duplicate and, at the end of the month or quarter, one copy is sent to the donor and the other kept for church records and for the preparation of quarterly and annual reports. The mailing of this report to the church people is not a dun; it allows a reconciliation of the church's records and the member's records and can be used as a receipt of contributions. The total of the monthly report of the financial secretary (Exhibit 4) forms the basis of the journal entry:

Dr. Pledges, not received	$X,XXX.XX	
Cr. Pledges, receivable		$X,XXX.XX

FINANCIAL SECRETARY REPORT

Received This Period	Envelopes & Pledges	Tithes	Plate Collection	Church School	Special Collection	Other Sources	Total
For Current Expenses	XXX. XX	XXX. XX	XX. XX	XX. XX	XX. XX		XXX. XX
For Benevolences	XXX. XX	XXX. XX	XX. XX	X. XX	XX. XX		XXX. XX
Total	XXX. XX	XXX. XX	XX. XX	XX. XX	XX. XX		XXX. XX

EXHIBIT 4

By the adoption of this form, internal check may be made with the treasurer by the following example:

For current expenses	$ XXX.XX
For benevolence	XXX.XX
Total received this period	$X,XXX.XX

This total received should equal the amount of deposits as per deposit slips. By the adoption of this form of reporting, the current status of pledges and budget total may be compared.

Current expenses:	
Estimated current expenses for year	$XXX.XX
Total pledges last report	$XXX.XX
Benevolences:	
Total allocated for benevolences for year	$XXX.XX
Total pledges last report	$XXX.XX

TREASURER'S REPORT (Current Fund)

PERIOD OF REPORTING: FROM_____, 19____ TO:_____, 19____

RECEIPTS

BALANCE ON HAND AT BEGINNING OF PERIOD		$X, XXX. XX	
ENVELOPES AND PLEDGES	$X, XXX. XX		
LOOSE PLATE OFFERING	XXX. XX		
SPECIAL CONTRIBUTIONS	XX. XX		
OTHERS	X, XXX. XX	X, XXX. XX	
TOTAL RECEIVED			$X, XXX. XX

DISBURSEMENTS

MINISTERIAL	$ XXX. XX		
CONNECTIONAL EXPENSES	XXX. XX		
LOCAL EXPENSES:			
MUSIC	XXX. XX		
JANITORIAL SERVICE AND SUPPLIES	XXX. XX		
UTILITY COST	XXX. XX		
OTHER EXPENSES	X, XXX. XX	X, XXX. XX	
TOTAL DISBURSED			X, XXX. XX
BALANCE ON HAND_____, 19____			$X, XXX. XX

(Benevolence Expenses Reporting is same as outlined above.)

EXHIBIT 5

All disbursements are made by pre-numbered checks. If regular check vouchers are not used, then all check stubs must be filled out showing all pertinent information and the current bank balance. If a building fund has a different treasurer, then disbursements from this fund will come from another bank but all funds are consolidated for final reporting. A recapitulation may be made and posted to subsidiary journal showing the receipt and breakdown of all bank deposits, as outlined, to particular funds. All checks are listed and charged to applicable funds, showing the remaining balance of funds at the end of the period. As all receipts and disbursements are classified as either current or benevolence, the monthly treasurer's report (Exhibit 5) can be prepared from information contained in the books of original entry.

AUDIT REPORT

Record	Balance At Beginning Period	Cash Rec'd And Recorded	Total Cash For Period	Total Disbursements For Period	Balance End Of Period
Current Expense Fund	X, XXX. XX	X, XXX. XX	X, XXX. XX	X, XXX. XX	X, XXX. XX
Benevolence Fund	XXX. XX	XXX. XX	XXX. XX	XXX. XX	XXX. XX
Building Fund	X, XXX. XX	X, XXX. XX	X, XXX. XX	X, XXX. XX	X, XXX. XX
Others: Name:	XXX. XX	XXX. XX	XXX. XX	XXX. XX	XXX. XX
			Total Amount In All Funds		X, XXX. XX

EXHIBIT 6

In every congregation there are qualified persons able to perform the audit of church records. The services performed here are primarily to determine that the contributions of the donor are recorded properly and that expenditures are those needed to carry out the approved program of the church. Reference is made to Exhibit 6 for audit report. With the rotation of committees applicable to church financing and reporting, the audit committte has a threefold purpose:

1. To observe internal control procedures.
2. To verify the adequacy of church records.
3. To give the membership a chance to participate in the administrative affairs of the church.

Five Ways of Discrediting Standard Costs— And the Lessons They Teach

by MEL COOK

AUTHOR'S COMMENT

THE TYPE of person you are about to read about is, thank heaven, in the minority, but the methods he uses to circumvent standard cost controls have been and are presently in use. As a result, many companies are operating under the false sense of competitive security caused by buried inefficiencies. It is about time that these companies re-appraised their so called cost controls and brought them up-to-date.

It may come as quite a shock to most people that a supervisor will use dishonest tactics but, remember, his job is at stake—and it is one of the most difficult in industry. It tempts an incompetent man to cover up to hold it. The supervisor spends ninety-nine percent of his time with the workers. Is it any wonder that he may be a little too lenient with them, either just to be a "good Joe" or, in some cases, out of fear. This is especially true in a tough union shop where he trades "minor" concessions for better cooperation. In other cases, the supervisor may not have the technical or social qualifications to do a good job. Would you expect him to permit exposure of his poor performance without an attempt to cover up? This is calling for a good deal.

Accountants have always dealt with the mechanical ingredients of standard cost control: the development of standards, establishment of cost centers, the variance report, and so on. But, as this article indicates, there is another ingredient, the human element. Ignore it and you have a pile of meaningless figures; recognize it and you have cost controls. The remainder of this article is in the words of our storybook malcontent and incompetent, whom we have credited, however, with the acumen to point out the lessons his conduct teaches.

Here I Am — Do You Know Me?

I'm the worst supervisor you can imagine. My department is the most inefficient in the company and, what's more, it will probably get worse. I do nothing about sub-standard operator performance; I look the other way when some of my workers cheat on counts; and, as far as proper instruction my people are self-taught, that is, they learn by experience (the "spoiled work" method). I've been called unqualified, lazy, and dishonest, and a lot of other

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names not suitable to print. They fit me to a "t". You're no doubt wondering how I can keep a job. Well, I've had several but it takes the boys on top several years before they catch on and, by then, I'm a little tired of the company anyway, so leaving comes as a relief. My success, and I call it successful when someone of my character can last even a few months with any organization, is attributable to one thing and one thing only—poor standard cost controls.

All the companies I've been associated with have a system which they call cost control. This term comes in second only to "cost reduction" as the most over-used phrase in the vocabulary of the industrial manager. The systems used by some of these firms are as fashionable as the Maginot Line and just as impregnable. They contain so many loopholes that, for example, even without a supervisor, a department can show a favorable variance. Since I am due to retire shortly, I've decided to leave to the world of cost accountants a great manuscript, my memoirs. Reading it may teach these originators of cost control systems a few lessons about standard cost, not from an academic viewpoint but from the human aspect.

"The Standards-Are-Wrong" Approach

I believe that the best defense is a good offense. The first self-survival method I use is an attempt to discredit the standards themselves. When confronted with a large loss variance for my department, I immediately claim the standards are wrong. You've all heard that before. I then attempt to find several errors, sometimes minor, sometimes significant, which will throw doubt on the validity of the whole standard cost system. Since human beings are not infallible and manufacturing men are normally suspicious of accounting figures, both these things are not too difficult to accomplish. All a supervisor has to do is come up with one or two mistakes a month and the plant manager will, in a very short time, ignore the variance report. Then there is nothing to worry about. I'll give you the low-down on some of these errors.

Besides the honest errors of omission made in the compilation of departmental standards, accuracy is sometimes sacrificed for simplicity and this helps me a great deal. In the electronics industry, for example, products are sometimes rejected for failure to meet electrical specifications. This is characteristic of the product and not the fault of the workers or supervisor. Consequently, an unavoidable shrinkage allowance should be included in the standard, and this must be done by department. Averaging of plant-wide shrinkages, satisfactory for pricing and accounting, does not give a reliable picture of departmental performance.

Another simple but inaccurate standard cost procedure is the refusal to adjust standards with changing methods. While the overall impact of these changes on the price of the product may be insignificant, the departmental effect may be great. It may be impracticable to make these minor adjustments when they occur but, after a few months, they may add up to substantial deviations from the original standards. If fair personnel judgment is to be made, standards used for cost control must be reasonably up-to-date.

A very common mistake is the failure, on the part of many standard cost systems, to allow for day-work operations in a wage incentive shop. Obviously, an operator not on incentive will perform at less than 100 percent efficiency and some departments have more day-work than others. Therefore, it is unfair to expect a supervisor to maintain standard performance when incentive coverage, a factor beyond his control, is not present to assist him. Operating heads know this. Some allowance is necessary.

Perfection is difficult to achieve, but some cost control systems don't even come close. It should be remembered that standard cost exposes poor supervision and, consequently, the security of the individual is put in jeopardy. Management realizes this and will not take punitive action unless certain that the variance is caused by inefficiency and not by accounting discrepancies. An incapable supervisor will always blame the system and, assisted by errors and omissions, may be able to maintain his position in the company.

Lesson No. 1: The standards must be accurate, reliable, and attainable.

The Production Count Technique

While "the standards are wrong" approach is basically honest, the production count technique of beating cost controls is not. There are three methods I've used to make my department look "ship-shape". They are:

1. Inflate the production counts.
2. Include spoiled work as good units in the production counts.
3. Include in the count a second time work which has already left the the department once and was returned for re-work.

In some companies supervisors are required to report the daily production. When this happens, the way is open for whole-sale cheating. It's like permitting a student to grade his own examination. Simply by inflating the counts or including spoiled work as good units in the production report (this is safer), any inefficiencies can be buried. Luckily for management, most companies do not permit the count control by supervisors.

The third method of cheating on production counts means that the department will get full standard dollar credit for re-worked units when the operator's time is charged to re-work. Of course, incorrect counts may be brought to the surface eventually but by then too long a period has gone by for me to "remember" why my counts don't check out.

Lesson No. 2: The individuals responsible for production should not be responsible for production counts.

Lesson No. 3: Segregate re-work going back and coming from a department. Don't permit double credit.

Let me clarify one point. An analysis, variation or otherwise, will expose any of the methods employed to circumvent the controls, but there are four reasons why unscrupulous supervisors like myself are not likely to be uncovered. The first is that an analysis is a detailed, time-consuming job, considered a luxury by a great many companies. Secondly, variation analysis is usually done by the "exception" principle, that is, only for departments with an unfavorable variance. This usually will not occur in my department. The third reason is that, when business is good and profits are high, management tends to be less cost conscious. Lastly, when profits are down and analyses to reduce costs are of paramount importance, overhead departments, such as accounting and industrial engineering, are cut to the bone and no personnel are available for such studies.

As you can see, investigations alone cannot be depended upon to keep supervisors in line. The standard cost control system itself must be so tightly constructed as to prevent these abuses.

The Incomplete Coverage Loophole

The easiest method I found of "beating the system" is in a company which does not have standards for all products manufactured. New products, low quantity items and various other parts that industrial engineering hasn't been able to time study for one reason or another may not have standards. Since no standard credit can be applied, accounting must also remove the actual cost accumulated against these items. All I have to do in order to eliminate any variance caused by other operations is to charge some of the time incurred by jobs on standard to parts not covered by standards.

To illustrate, let's take Product A which has a standard and Product B which does not. Any inefficiencies traceable to Product A will be reflected in the variance report but Product B cost, because there is no standard, cannot be included. I simply charge some of the cost of Product A against Product B.

Lesson No. 4: All products manufactured should have standards either engineered or estimated.

Non-Productive Classifications — An Easy Out

I always keep someone in reserve for those end of the month "pushes", and yet that person, though really idle most of the time, is never reflected as such in the variance report. This is accomplished simply by reporting him on re-work (caused by some other department, of course.) There are other methods I use to "sop up" my inefficiencies. Charging productive time to setup, training, engineering and machine downtime, if done with moderation, will easily hide costs which would otherwise be unfavorable variances.

Excessive nonproductive costs are not necessarily the fault of the department incurring them. Re-work may be caused by errors in other areas, setup time is determined by scheduling practices and sales orders, and training expenses can be the fault of the plant-wide seniority "bumping" system. Engineering cost is expected and accepted and machine down-time may be normal or the fault of the maintenance department. Anyway you look at it, the supervisor always has an "out."

Some standard cost systems include setup in the "on standard" category, using an average lot quantity for each setup. This only contaminates the accurately measured production standards unless, of course, the average lot quantities are strictly adhered to, which is unusual.

All these nonproductive costs, though sometimes rather substantial, are considered a necessary evil by many companies and not too frequently investigated. This is their mistake.

Lesson No. 5: Segregate costs not directly traceable to production and evaluate them separately.

The Pot Pourri Error — or The Accountant's Helping Hand

Possibly the greatest assistance in helping me to exist, and no doubt other incapable supervisors, come from the accountants themselves. Many standard cost systems use the "pot pourri" method of reporting variances to management. This procedure simply throws all costs, controllable and noncontrollable, into the same pot, the result being a report which includes price and volume variances along with performance variances. Consequently, when business is improving, even the most inefficient manufacturing organizations can show a favorable

variance. This "washing out" of real inefficiencies by added volume of lower purchase prices (quantity discounts) only serves to camouflage the real picture.

Noncontrollable items, e.g., rent, taxes should be excluded from the departmental variance report, since they are fixed and, therefore, not true indicators of shop performance. The presentation of the report determines, to a great extent, the reaction of management. Many executives are not accountants, nor do they completely understand accounting controls, nor do they have the time to separate the facts from the figures. If required to interpret these reports which contain a hodge-podge of statistics, chances are that wrong action or no action will result.

Lesson No. 6: Costs not indicative of operating efficiency should be excluded from the variance report.

Lesson No. 7: Don't use the "needle-in-the-haystack" type of report. Highlight the controllable variances in order for management to get the full impact of shop performance at a glance.

Anyway, My Conscience is Clear (or is it?)

Well, now you have it. These are the methods I use to rob management deaf, dumb, and blind. These profits are being flushed away because of inadequate controls. The seven lessons I leave to the cost accountants and industrial engineers are, you might say, to clear my conscience, to expiate my sins. If used, they will make standard cost systems do what many are now failing to do, namely, reduce costs and prevent people like me from retiring as supervisors.

Service and Maintenance Labor Cost Control Through Man-Hour Budget Standards

by WILLIAM C. JONES

A STANDARD COST SYSTEM, properly developed and applied, serves many purposes other than financial control. To the sales department it provides a sound basis for the establishment of prices to the extent that costs influence prices. The operating department relies upon it for development of plans and for the all-important purpose—cost control. It readily adapts itself to use by engineering department for facility and long-range planning. To the accounting department, it is the chief tool for providing an ever-increasing service to management. This last-named field, i. e., service to management, is the one of concern here. This paper will illustrate a specific use of the standard cost system to provide control in terms of labor hours. Although statistical in nature, this control will correlate with dollarized variance results reflected at month-end.

Planning in Terms of Allowed Man-Hours

Since the standard cost system is based upon engineered basic standards stated in units and quantities, the control of service and maintenance labor may be developed in terms of quantitative results, dollarized results or both. To facilitate its use, the control to be described is based on man-hours. Most operating management is more familiar with quantity of labor required to operate a business than with the dollarized cost of the labor.

Most manufacturing companies doing business today find that their number one cost is hourly paid labor. This can generally be subdivided into two broad groupings, i. e., direct or producing labor and indirect labor of a service or maintenance nature. The producing labor is a very tangible element of the manufacturing cost. Set out as a separate and distinct item in the card of accounts, it can easily be controlled through normal day-by-day use of the standard cost system. Quotas are firmly fixed for each cost center, operation and process. If production is under way, the prescribed labor force is present. If production

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stops for breakdown or for any other out of numerous reasons, payment of direct labor ceases, within the bounds of sound judgment and contractual obligation.

Service and maintenance labor is less tangible in all respects. Its necessity in an orderly and efficient manufacturing process is not questioned. Yet, since it is an indirect factor, it is more difficult to adapt to measurement and firm control. In many cases, the requirements for indirect labor do not fluctuate in the same proportion as the operating level. How much service and maintenance labor should be employed at varying levels of operations? What is the most economical mid-point? A standard cost system will answer these questions and will point the way for greater efficiency and economy.

Next comes the question at which point should control be exercised, the recipient level or the source level? The standard cost system provides for control at either or both levels. However, since the procedure to be illustrated is based upon control before the fact, it will function at the source level where the service and maintenance labor is scheduled and supervised. The standard cost system is an excellent tool for predetermination of allowances or budgets for service and maintenance labor. By the activation of budget allowances in the recipient producing units against planned or forecast levels of activity, the man-hour budgets for each shop or service may be accumulated and determined in advance. This, in turn, can be used as a guide for the advance scheduling of the labor force. Comparison of man-hour allowances and schedules are then made "before the fact," with a follow-up provided in the form of subsequent comparison with actuals. These calculations and comparisons are made on a weekly basis.

The preplanning is the heart of the control, as it provides the opportunity for corrective action before the hours are worked. Supervisors of shops and service functions are furnished their labor allowance by individual recipient cost centers. The over-all distribution or scheduling of this allowance by occupation is left to their discretion. Allowances in individual cost centers may be knowingly exceeded, but there is strong inducement to stay within the bounds of the over-all allowance. Top management reviews the comparison of allowance and schedule before-the-fact.

Normal Distribution of Service and Maintenance Man-Hours

Discussion up to this point has centered around the need for control of service and maintenance labor and some of the essential elements which must be incorporated into the control. Before pursuing the details of application, it is well

to describe a typical company setup that will illustrate a majority of the problems involved. Assume that the hypothetical company involved consists of five separately located producing plants, each having its own assigned preventive maintenance crews and one or more shop or service functions. Consider that the maintenance crews serve only the plant to which assigned and that the shops and service functions perform work for all plants, irrespective of location. Two of the shops also perform work for parties outside the company. In addition, there is centrally located construction department which maintains its own labor force, but, at times, draws upon the shop forces for both shop work and supplemental labor.

The standard cost system provides for a normal volume distribution of service and maintenance man-hours, as outlined, with but two exceptions. First, the sale of man-hours or service to outside parties by the two shops mentioned is not recognized, due to its infrequency and unpredictable nature. Second, the work done for or by the construction department is not comprehended in standards. However, as will be shown later, the control should contain provision for these exceptions. Exhibit 1 illustrates the assumed physical setup and the standard distribution of service and maintenance labor.

Planning the Weekly Man-Hour Budget the Week Before

Under the setup described, it can be seen that a weekly control of indirect labor on a pre-planned basis presents what might be a rather complex problem. There are 31 assigned maintenance crews, 17 shops and 6 service functions pouring 220,000 man-hours of labor per month into five plants which might include hundreds of individual production centers. The control at the source level entails the predetermination of standard man-hour requirements in each of the production centers for each service or maintenance function, accumulation of these requirements by origin, and comparison with work schedules before the week is worked.

The accounting department cannot do the job alone. It can and should, however, undertake the correlation of effort required, summarize the end results and prepare the weekly reports for release to those responsible for use of services and labor. Initially and on a continuing basis, the interest and support of top management is an absolute requirement for the successful inauguration and functioning of the control. The coordinated assistance of production planning, industrial engineering, operations and construction departments (or their equivalents) are necessary.

The production planning department is called upon to furnish plant accounting with the planned level of operations on Monday preceding the week re-

PHYSICAL SET-UP AND STANDARD DISTRIBUTION OF S&M LABOR

PLANT A	
10 Assigned Maint. Crews	
8 Shops	
3 Co. Service Functions	
Totals	
100,000 M. H. of S&M Labor	
Distributed To:	
Own Plant	65,000 M. H.
Plant B	15,000 M. H.
Plant C	10,000 M. H.
Plant D	5,000 M. H.
Plant E	5,000 M. H.
Consumption Is:	
65,000 M. H. from Own Plant	
3,000 M. H. from Other Plants	

PLANT B	
5 Assigned Maint. Crews	
3 Shops	
Totals	
30,000 M. H. of S&M Labor	
Distributed To:	
Own Plant	25,000 M. H.
Plant A	2,000 M. H.
Plant C	1,000 M. H.
Plant D	500 M. H.
Plant E	1,500 M. H.
Consumption Is:	
25,000 M. H. from Own Plant	
17,000 M. H. from Other Plants	

PLANT C	
5 Assigned Maint. Crews	
1 Co. Service Function	
Totals	
18,000 M. H. of S&M Labor	
Distributed To:	
Own Plant	15,000 M. H.
Plant A	None
Plant B	2,000 M. H.
Plant D	500 M. H.
Plant E	500 M. H.
Consumption Is:	
15,000 M. H. from Own Plant	
14,000 M. H. from Other Plants	

PLANT D	
4 Assigned Maint. Crews	
2 Shops	
Totals	
20,000 M. H. of S&M Labor	
Distributed To:	
Own Plant	18,000 M. H.
Plant A	None
Plant B	None
Plant C	1,000 M. H.
Plant E	1,000 M. H.
Consumption Is:	
18,000 M. H. from Own Plant	
10,000 M. H. from Other Plants	

PLANT E	
6 Assigned Maint. Crews	
4 Shops	
2 Co. Service Functions	
Totals	
52,000 M. H. of S&M Labor	
Distributed To:	
Own Plant	45,000 M. H.
Plant A	1,000 M. H.
Plant B	None
Plant C	2,000 M. H.
Plant D	4,000 M. H.
Consumption Is:	
45,000 M. H. from Own Plant	
8,000 M. H. from Other Plants	

EXHIBIT 1

ported. The industrial engineering staff develops the basic standards relationship (normalized rates) between planned operations and allowed man-hours. Using these two factors, plant accounting personnel develop and summarize the budgeted man-hours to be allowed against each shop or service at its own and other plants, as appropriate, the interchange of allowances between plants being handled by telephone. For example, this procedure should function as follows: Production planning, working from a sales forecast furnished by the sales department, determines that Producing Unit X will operate ten turns during the coming week. The industrial engineering department has previously determined from basic standards relationships that this unit is allowed 100 man-hours of service and maintenance labor for each eight-hour turn operated. This allowance is distributed to the various sources as illustrated in Exhibit 2.

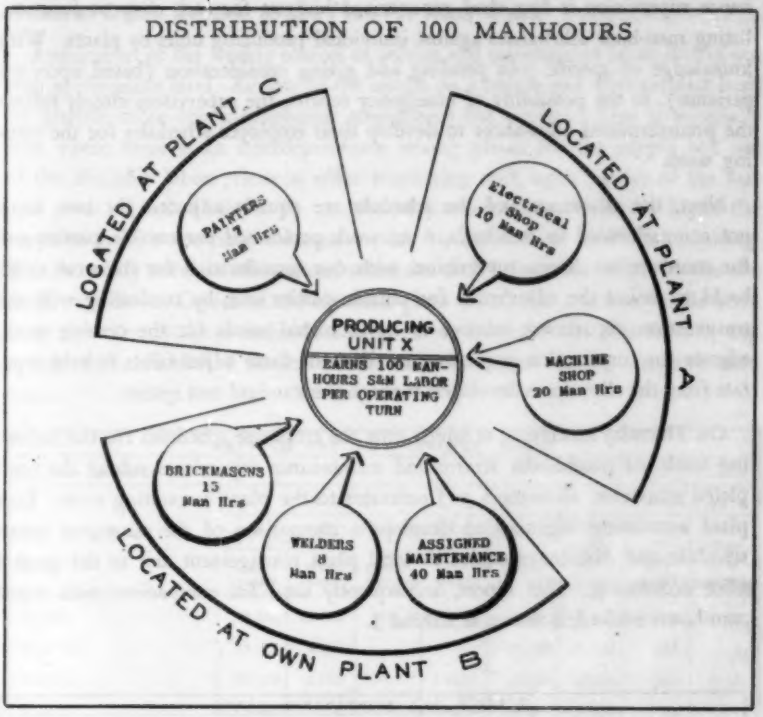
DISTRIBUTION OF 100 MANHOURS
LOCATED AT PLANT C
LOCATED AT PLANT A
LOCATED AT OWN PLANT B
PAINTERS 7 Man Hrs
Electrical Shop 10 Man Hrs
PRODUCING UNIT X
EARNS 100 MAN-HOURS S&M LABOR PER OPERATING TURN
MACHINE SHOP 20 Man Hrs
BRICKMASONS 15 Man Hrs
WELDERS 8 Man Hrs
ASSIGNED MAINTENANCE 40 Man Hrs

EXHIBIT 2

Plant B accounting department, where Producing Unit X is located, then calculates the allowance of 1,000 man-hours for the unit, by sources, as follows:

Against own Plant B		*Against Plant A*		*Against Plant C*	
Brickmasons	150 Hrs.	Electrical Shop	100 Hrs.	Painters	70 Hrs.
Welders	80 Hrs.	Machine Shop	200 Hrs.		
Asgd. Maint.	400 Hrs.				
Total	630 Hrs.	Total	300 Hrs.	Total	70 Hrs.

Plant B then advises Plants A and C by telephone of the allowances for their shops serving Unit X. In actual practice, Plant B would summarize the allowances for all its producing units before making these contacts.

On Wednesday morning preceding the week reported, service and mainte-

nance supervision is furnished summarized budgets for each shop or function, listing man-hour allowances against individual producing units by plants. With knowledge of specific jobs pending and giving consideration (based upon experience), to the possibility of emergency repairs, the supervisors closely follow the predetermined allowances to develop their employee schedules for the coming week.

Next, the allowance and the schedule are equally adjusted for two items not comprehended in standards, i. e., work performed for outside parties and for construction. Shops supervision, with due consideration for the work order backlog, makes the adjustment for outside parties and, by conferring with the construction department relative to its estimated needs for the coming week, adjusts for construction requirements. Each of these adjustments is held separate from the allowances developed through the standard cost system.

On Thursday mornings, at which time the employee schedules for the following week are posted, the service and maintenance supervisors submit the completed schedules, allowances and estimates to the plant accounting units. Each plant accounting organization develops a comparison of the allowance versus schedule and distributes copies to local plant management and to the general office accounting. This report, subsequently used for comparison with actual man-hours worked, is shown as Exhibit 3.

SERVICE AND MAINTENANCE LABOR

PLANT A — WEEK ENDING Sept. 6, 1938

SHOP OR SERVICE FUNCTION	ALLOWED MAN HOURS					TOTAL SCHEDULED HRS.	ACTUAL MAN HOURS				
	OWN PLANT	OTHER PLANTS	OUTSIDE PARTIES	FOR CONST.	TOTAL ALLOWED		OWN PLANT	OTHER PLANTS	OUTSIDE PARTIES	FOR CONST.	TOTAL ALLOWED
No. 1 Assigned Maint. Crew	5 117				5 117	4 960					
No. 2 " " "	2 812				2 812	2 800					
No. 3 " " "	4 622				4 622	4 800					
No. 4 " " "	2 840				2 840	2 800					
No. 5 " " "	3 939				3 939	4 000					
No. 6 " " "	1 480				1 480	1 440					
No. 7 " " "	3 629				3 629	3 600					
No. 8 " " "	2 116				2 116	2 000	This section completed				
No. 9 " " "	1 626				1 626	1 560	by plant accounting on				
No. 10 " " "	2 340				2 340	2 400	Tuesday after the week				
Machine Shop	8 781	6 317	140	1 000	16 238	15 000	is worked.				
Welders Shop	2 662	2 116		2 000	6 778	6 600					
Fabricating Shop	3 211	4 618		3 000	10 829	10 800					
Electrical Shop	1 925	5 813	270		8 008	8 000					
Riggers Shop	494	1 611			2 105	2 000					
Painters Shop	643	926			1 569	1 600					
Carpenters Shop	816	1 610			2 426	2 400					
Pipefitters Shop	1 225	1 160			2 385	2 200					
Power Distribution	4 821	6 400			11 221	10 800					
Water Distribution	2 440	4 310			6 750	6 600					
Steam Distribution	1 816	5 612			7 428	7 400					
Plant Total	59 355	40 493	410	6 000	106 258	104 560					

EXHIBIT 3

General Office Review of the Plan for Next Week

Application of the weekly control of service and maintenance labor should not stop at the plant level. Review of the results on a before and after-the-fact basis by general office top management strengthens the control. This is especially true where there is an interdependence among plants for the supply and use of the available labor. General office accounting staff, upon receipt of the various plant reports (Exhibit 3) on Thursday afternoon immediately begin the preparation of a company summary report for distribution on Friday morning. This summary exhibits allowances, schedules and differences by plants for the week to follow. Copies of the detailed plant report are attached to the summary for close study of individual shop or service functions if desired by top management. Exhibit 4 illustrates the form developed for the company summary.

SERVICE AND MAINTENANCE LABOR

COMPANY SUMMARY NO. 1 — WEEK ENDING Sept. 6, 1958

PLANT	MAN HOURS — ALLOWANCE — AT STANDARD — OWN PLANT	AT STANDARD — OTHER PLANTS	FOR OUTSIDE PARTIES	ESTIMATE FOR CONST.	TOTAL ALLOWED	SCHEDULED MAN HOURS	VARIANCE — MAN HOURS	VARIANCE — EQUIV. 40 HR. EMPLOYEES
Plant A	59 355	40 493	410	6 000	106 258	102 560	3 698	92
Plant B	23 604	4 668	-	-	28 292	28 080	212	5
Plant C	16 289	2 614	-	1 000	19 903	20 800	(897)	(22)
Plant D	15 401	3 216	-	-	18 617	18 600	17	
Plant E	43 314	5 228	-	2 000	50 542	52 600	(2 058)	(51)
Company Total	157 963	56 239	410	9 000	223 612	222 640	972	24

( ) Denotes Unfavorable Variance

EXHIBIT 4

In this report for top management, the variance man-hours are not detailed. The estimates for outside parties and for construction have been included in both the allowance and the schedule in equal quantity. Therefore, it is known that all variances reflect comparison with standard. It will be noted that, overall, the company is in the "black" (favorable variance) by 972 man-hours, or the equivalent of 24 employees; however, Plants C and E are "over" by 22 and 51 employees, respectively. Since the detailed plant reports are attached to the summary, top management can quickly locate and question the source of these "overages." Ample time is available for corrective action, if such is needed, since the report is being studied on Friday prior to the week in question.

Studying the Results

As a follow-up, plant management and general office top management are furnished with a comparison of the original allowance with hours actually worked. Due to the short-term forecasting and the relative accuracy of the allowances based on planned level of operations, it has not become practical or necessary to develop an allowance based upon actual operations. Such allowance could only be used after the fact and would have little value except for analysis purposes.

On Tuesdays, after the week in question has been worked, the plant accounting department resubmits Exhibit 3, with the columns for actual man-hours filled in. The figures in the allowed and scheduled columns are repeated without change to provide the completed report. These reports become the basis for the follow-up summary to top management which is distributed on Wednesday mornings. Copies are distributed, as before, to service and maintenance supervision, plant management and general office accounting. The summary takes the form of Exhibit 5, with the completed plant reports attached. In this report for top management, first indications are that service and maintenance labor man-hours have been controlled to the extent of a favorable variance totaling 1,324 man-hours.

The example has been purposely developed to indicate this erroneous impression. Keep in mind that the variance for construction is from an estimate and not a standard. The favorable variance of 2,790 man-hours against construction simply means that work on capital expenditures was not performed and that

SERVICE AND MAINTENANCE LABOR

COMPANY SUMMARY NO. 2 — WEEK ENDING Sept. 6, 1958

PLANT	MAN HOURS							
				VARIANCE – ACTUAL VS. ALLOWED				
				FROM STANDARD		FROM ESTIMATE		
	ALLOWED	SCHEDULED	WORKED	OWN PLANT	OTHER PLANTS'	OUTSIDE PARTIES	FOR CONST.	TOTAL VARIANCE
Plant A	106 258	102 560	103 427	(1 248)	2 310	(60)	1 829	2 831
Plant B	28 292	28 080	28 396	(211)	107	-	-	(104)
Plant C	19 903	20 800	20 106	(849)	29	-	617	(203)
Plant D	18 617	18 600	18 209	288	120	-	-	408
Plant E	50 542	52 600	52 150	(1 916)	(36)	-	344	(1 608)
Company Total	223 612	222 640	222 288	(3 936)	2 530	(60)	2 790	1 324

( ) Denotes Unfavorable Variance

EXHIBIT 5

property accounting will not be charged to the extent anticipated. The result that top management should and does give close attention to is the net of the two columns measuring variance from standard. "Own plant" results are unfavorable by 3,936 hours, partly offset by a gain of 2,530 hours in the "Other plant" column. If the forecast level of operations has been fairly accurate, the net of these two variances, multiplied by the average hourly cost, will give a close approximation of the dollar variance to be expected for the week. Variance gains or losses, by individual plants can readily be traced back to the source by reference to the plant reports which were attached to the summary.

Prescription for Effective Application

There are three items of a technical nature which should be considered in establishing a control of service and maintenance labor based upon using the standard cost system:

1. Normally, shops and some service functions charge the recipients on a basis of direct or salable man-hours with the indirect shop hours being absorbed in the dollarized charging rate. Basic standard man-hour distributions specify direct hours. For effective control, all man-hours in the source shop or service should be considered. Inclusion of indirects in the allowance or budget may be accomplished in one of two ways. The standards relationship between production in the recipients and allowed service hours can be adjusted to include the indirects, or indirects can be added back to direct allowances based upon the ratio of indirect labor to salable labor in each shop or service unit.

2. The second item of technical consideration involves the elimination of production rate effect from the allowance or budget. The control should not be complicated by an attempt to forecast production rate at the same time that planned producion is being set up. This can be avoided by having the production planning department state planned activity in terms of operating turns, hours, or days, rather than in units of production, or by assuming standard production rate in the standards relationship, if units of production are used.

3. Consideration should be given to the cost of applying the control. Would a manual application or punched card system be more economical? The control, as outlined, readily lends itself to a punched card tabulating system, especially in a company which is already using tabulating or data processing equipment for development of payrolls and related statistics. The control has been known to function well under either application.

As stated in the beginning, hourly paid labor is generally the "number one" item of cost for manufacturing industries. Generally, too, the indirect component is more difficult to control under varying operating levels than is the direct component. However, effective control of either can be obtained through a sound standard cost system. The essential elements of effective control of service and maintenance labor are summarized as follows:

1. The interest and support of top management must be secured for successful control.
2. Results should be stated in quantitative terms to facilitate the understanding of all levels of management. Use man-hours, man-days, or number of employees. End results must be readily adaptable to dollar evaluation, if desired.
3. Measurement must be based on standard practice unit allowances and not on labor quotas. This will assure the correlation of man-hour results with dollarized cost variances at the end of the accounting period.
4. Results should be measured at the source level where service and maintenance labor is scheduled and supervised.
5. Control must be before the fact. This is the heart of the system, as it provides the opportunity for advance corrective action.
6. A follow-up in the form of a comparison of allowances and schedules with actuals is required to maintain the accuracy of the control.

Service and maintenance costs are somewhat nebulous in nature, but generally offer a fertile field for cost reduction. It is believed that a control, built upon the essentials outlined, offers the industrial accountant a sound approach to the problem.

Control of Overhead With a Variable Budget in a Research Operation

by HARRY J. SCHMIEG

CONTROL of the costs in a research and development operation presents new problems to industry. Prior to World War II, the research effort in the industrial plant was very minor and the costs involved were fixed in nature. The research scientist was very little concerned with the accountant except to ask for aid in an occasional new product estimate. An expansion of research and development, both in size and importance, brought about a necessary change in this relationship. Various government regulations and the limits of the fixed price and cost plus fixed fee contracts imposed cost control in some form on the contractor. In addition, company management inisted on control of its growing engineering expenditure. A major area in the control of research and development costs was that of overhead expenses.

Need For a Variable Budget

A fixed or non-variable budget program should be the ultimate goal of every well-run business organization. This type of budget presents clear-cut goals and strives for a specific profit. Most companies express their annual profit objectives in terms of a budget that is fixed in nature. A prerequisite for the fixed budget is accurate planning and overall coordination and follow-up. In addition, a fairly constant volume is necessary to stabilize the operation further. However, it is not always possible to achieve such ideal conditions. While a fixed budget may be highly applicable on the overall basis, even a comparatively static operation cannot infallibly predict annual or monthly volume for each department. Therefore, the most reliable or workable plan is one which will allow for changes in volume.

One of the primary factors of overall departmental expenditures is that of overhead expenses. This type of expenditure is extremely difficult to control in the face of a rapidly fluctuating level of operation. A variable type of budget

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for overhead expenses provides a means through which overhead objectives, at any given level of volume, can be realistically reflected in the budget. A variable budget for overhead expenditures is applied to each area of responsibility. This plan can be integrated with a fixed over-all profit objective. In a research and development operation, the overhead expenses are incurred solely as a result of supporting direct engineering effort on all current projects. This application of direct labor effort on projects depends on technical objectives and schedule end dates, both of which are subject to change at any time. Minor fluctuations in volume of the individual areas will either be offset or have very little cumulative effect on the overall plan. A violent fluctuation in volume in any area can have an effect on the overall plan. Under a fixed budget structure, the entire plan frequently has to be adjusted, from the sales objectives to the smallest expenditure. It would seem reasonable, then, to establish a plan which adapts to such changes. In short, the variable type of budget will not only provide an insight into how overhead expenditures react under extreme fluctuations of volume, but will also assure constant and consistent control under changing conditions.

Indoctrination of Management

The success of this or any other budgetary control is dependent on the active participation and complete support of the program by corporate and local management. Corporate management has for many years utilized a fixed type of budget. In general, there was one sales objective and one profit goal, with all costs fixed in between. With increased emphasis on break-even analysis and the profit-volume relationship, corporate management became aware of the variability of manufacturing costs with changes in volume. Selling, research and administrative costs, on the other hand, remained fixed. However, with the rapid expansion of the past several years, local research and development management has found itself on the horns of a dilemma in regards to overhead expenses. Reared in a fixed budget atmosphere, research and development management reacted in one of two ways:

1. Fixed budgets, once established, were rigidly adhered to regardless of expansion in direct engineering effort. This placed a great hardship on first-line supervision. This hardship was further accentuated by the fact that the expansion frequently meant the incurring of indirect expenditures previously not considered applicable to a research and development area. For example, an independent accounting system, a separate personnel area, and a purchasing function may have been required. In short, the line engineer labored under an overly stringent control.

2. Normal budgetary controls were either relaxed or completely abandoned. In many cases, the sky was the limit. The result was constant cost overruns on individual projects which were directly attributable to excessive overhead expenditures. Corporate management was forced to make arbitrary reductions in expenditures when faced with less return on its investment.

A solution to the problem was urgently required. The variable budget techniques for overhead, which had proven so effective in the production areas, provided a possible answer. Before this type of control can be considered, corporate management must accept the fact that it can no longer insist on a separate control of each of three elements of prime cost (material, labor and overhead). In regards to company-sponsored research and development, control should center around technical performance and total cost. In regard to government-sponsored effort, control lies in the realization of a profit. Research and development management must now perform to these objectives. The variable overhead expense budget is but one of the tools at its disposal to accomplish this. A reluctance on the part of corporate management to delegate this responsibility or on the part of research and development management to accept it can destroy this plan before it is introduced.

Equally important is the bond that must be established between local research and development management and its first line of supervision. The acceptance by both parties of the concept that certain overhead expenses do vary with volume will create an initial atmosphere of understanding. It remains then to establish what expenses vary, to what specific yardstick of volume, and to what degree in each individual department.

A good relationship must be established between the individual operating manager and the budget analyst who represents the controller's division. Soon after the issuance of instructions and forms, a meeting is held between the department manager and the budget analyst in order to formulate the required estimates. The actual estimates are prepared by the department manager. The budget analyst acts only in an advisory capacity, supplying historic data and analyses as required.

Research Overhead Cost Classifications and Relation to Labor

The successful establishment of a variable overhead expense budget is also dependent on the ability to segregate these costs into specific areas which are identifiable with an individual manager. It is an established fact that, to be controlled properly, all costs must be assignable to those responsible for their

incidence. Unfortunately, the assignment of responsibility is not always accompanied by an ability to control costs. For example, if a central administrative or services area has the responsibility for the telephone expenses of the entire operation, it cannot control these costs when the phones are physically located in all the areas of the operation. Responsibility is coordinated with control by means of a properly-defined chart of accounts and an organizational structure which identifies individuals with functional areas having a charter of responsibility properly established. These areas may be divisions, departments, or cost centers. Thus, the telephone expense in this case should be properly assigned to each department on the basis of usage.

Overhead expenditures must be further classified within the individual department. Telephone expense, indirect labor, supplies, stationery, direct labor on indirect assignment and other overhead items are incurred directly in the department and, since they are not determined directly by either company or union policy, can be classified as controllable. Items such as fringe benefits, depreciation, taxes and allocated services are segregated and shown as assignable but noncontrollable. These costs are assigned to the individual department only for the purpose of making the department manager aware of the total cost of the area for which he is responsible. In preparing a variable overhead expense budget, it is the controllable expenditures which prove most elastic with changing volume and require the most attention.

Similar to the production areas, the line engineering divisions can use actual direct labor hours expended on projects as a yardstick of departmental volume. If a shop operation is utilized for the manufacture of engineering prototypes, either direct labor hours or machine hours are adequate. In the service and administrative areas the problem is more difficult. Unlike the line engineering divisions, the overhead expenses in the administrative and service areas do not change as a direct result of engineering activity but vary more closely with their own volume factors, such as purchase orders, patent applications, contracts, new hires, etc. A study must be made in each area before such factors can be applied. This is a desired long-range budgetary goal. However, in the absence of such factors, the total direct labor hours for the entire operation are used in these areas so that the variable budget system may be initiated in all at the same time.

In order to establish a relationship between individual overhead expenses and direct labor hour volume in each department, three levels of volume are established in each. While more than three levels of volume may be desirable statistically, experience has shown that three estimates receive the optimum of conscientious effort on the part of the department managers. The department manager estimates, for each level of volume, the individual accounts over which

1958 BUDGET OF OVERHEAD EXPENSES

Selected Volume Range

Column A	75% 1958 Forecast
Column B	1958 Forecast & 1957 Est. Act.
Column C	125 % 1958 Forecast

Division	Military Computers
Department	Product Design

1957 Est.	Act.	a/c No.	Description	Original Submission Levels of Dir. Labor Operation (A)	(B)	(C)	Revised Budget Levels of Dir. Labor Operation (A)	(B)	(C)
			Direct Manpower						
	31		Engineers	23	31	39	23	31	39
	44		Other Direct	27	44	61	27	44	61
	75		Total	50	75	100	50	75	100
			Indirect Manpower						
	1		Managers	1	1	1	1	1	1
	1		Bi-Weekly	2	2	2	1	1	1
	9		Weekly	8	11	13	8	11	13
	11		Total	11	14	16	10	13	15
			Controllable Expenses						
	10000	601	Management	10,000	10,000	10,000	10,000	10,000	10,000
	7500	602	Indirect Labor-Bi-Weekly	16,000	16,000	16,000	7,500	7,500	7,500
	38400	603	Indirect Labor-Weekly	31,300	41,200	51,055	31,300	41,200	51,055
	17450	604	Direct Labor-Non-Proj.	13,750	18,475	23,153	13,000	17,200	21,600
	10000	605	Departmental Supplies	9,000	12,000	15,000	8,000	10,560	13,300
	2725	606	Stationary	2,475	3,300	4,125	1,970	2,910	3,870
	4450	607	Telephone Expenses	4,355	5,885	7,356	3,000	4,050	5,050
	1274	608	Travel	5,675	6,500	7,325	2,875	2,500	3,125
	514	609	Miscellaneous	1,200	1,200	1,200	1,200	1,200	1,200
			Assigned Expenses						
	29500	612	Vacation & Holiday Pay	24,263	32,487	40,709	23,950	32,174	40,396
	8200	613	Sick Pay Leave	5,772	7,726	9,681	5,772	7,726	9,681
	40000	6146	Fringe Benefits	31,500	42,000	52,500	31,500	42,000	52,500
	5200	6149	Depreciation	5,200	5,200	5,200	5,200	5,200	5,200
	10000	--	Allocated Service	10,000	10,000	10,000	10,000	10,000	10,000
			Total	170,490	211,973	253,304	155,267	194,220	234,477

*To be estimated by Controller's Division

EXHIBIT 1

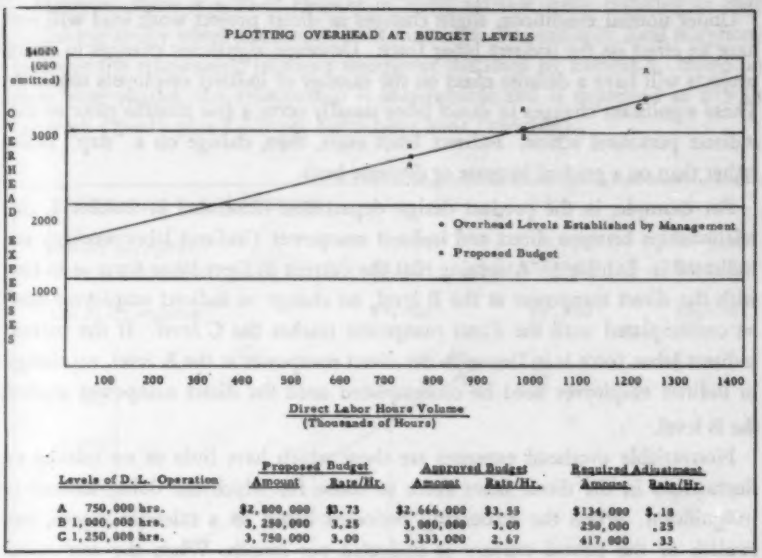
he excercises control. The most important factor is not the budgeting of an amount of money in each account but the development of a realistic relationship between the estimate of expenses and the selected levels of operation within the individual department. The form in Exhibit 1 is a means of obtaining these estimates.

Number of direct employees is used instead of quantity of direct labor hours. This figure can be more readily comprehended by the department manager and can be easily translated to hours in the development of the variable budget. The levels of direct labor operation are inserted by the controller's division. The B level represents the average number of direct employees forecast for the coming year and is referred to as the 100 percent budget. The A level was established at approximately 75 percent of the B level and the C level at 125 percent. Whenever possible, one of the levels is made to coincide with the average for the past year. The assignable expenses are inserted by the controller's division. Vacation and holiday pay and sick leave are considered assignable (noncontrollable) expenses, since their incidence is at least partly dictated by company policy.

The proposed departmental budgets are reviewed by three levels of local management: division manager, controller and budget analyst, and the director of engineering. Participation at the corporate level should be necessary only if the overall profit objectives of the company are jeopardized. It is the responsibility of the budget analyst to make the controller aware of any budget rates which, according to his analyses, seem unrealistic. The controller and the director of engineering have the responsibility of seeing that the total of all departmental budgets fall within the overall expense objectives of the research and development operation. This may be accomplished by accumulating the overhead expenditures proposed at levels A, B and C for all departments, and plotting these points as on Exhibit 2.

The total overhead objectives can be expressed in two ways: in terms of total overhead dollars as shown in Exhibit 2 or in terms of a rate per direct labor hour. In the minds of management it is the B level that is most important. By means of the B level rate per hour, the overhead expenses are applied during the year to the project cost. The total of all project costs must, in turn, agree with the overall profit objective of the research and development operation.

The establishment of the overhead objective at the A and C levels is not so easily approached. It is at this point that research and development management must for the first time consider the alternatives possible with a radical change in volume. It has been found that, at the C level, the tendency is to estimate disproportionately higher than expected while, at the A level, the


PLOTTING OVERHEAD AT BUDGET LEVELS
$4000 (000 omitted)
OVERHEAD EXPENSES
3000
2000
1000
100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400
Direct Labor Hours Volume (Thousands of Hours)
• Overhead Levels Established by Management
• Proposed Budget

Levels of D. L. Operation	Proposed Budget Amount	Proposed Budget Rate/Hr.	Approved Budget Amount	Approved Budget Rate/Hr.	Required Adjustment Amount	Required Adjustment Rate/Hr.
A 750,000 hrs.	$2,800,000	$3.73	$2,666,000	$3.55	$134,000	$.18
B 1,000,000 hrs.	3,250,000	3.25	3,000,000	3.00	250,000	.25
C 1,250,000 hrs.	3,750,000	3.00	3,333,000	2.67	417,000	.33

EXHIBIT 2

tendency is to estimate slightly lower than expected. Based on the chart in Exhibit 2, the adjustment required at the C level is much greater than that required at the A level. However, management must be warned against minimizing the importance of the adjustments at the A and C levels, since these levels are usually within the range of possibility.

Development of Budget Data in Specific Categories

The process of revising the departmental budgets is a crucial factor in the success of a variable type of budget. It is necessary that individual department managers participate in making any required modification to their budgets. Even if the individual manager does not agree with the recommended change, he is at least apprised of both the change and the reason for it. Final approval of the individual departmental budgets represents a mutual agreement between local research and development management and the individual department managers. The variable budget for each department is based on the revised budgets for each level of direct labor operation, as shown in the final three columns of Exhibit 1. This development breaks down into five separate techniques: indirect labor, variable expenses, semivariable expenses, nonvariable expenses and expenditures which require special treatment.

Under normal conditions, slight changes in direct project work load will not have an effect on the indirect labor force. However, significant changes in direct projects will have a definite effect on the number of indirect employees required. These significant changes in direct labor usually occur a few months prior to any indirect personnel action. Indirect labor costs, then, change on a "step" basis, rather than on a gradual increase or decrease basis.

For example, in the product design department illustrated in Exhibit 1, the relationships between direct and indirect manpower (indirect labor-weekly) are indicated in Exhibit 3. Assuming that the current indirect labor force is in line with the direct manpower at the B level, no change in indirect employees need be contemplated until the direct manpower reaches the C level. If the current indirect labor force is in line with the direct manpower at the A level, no change in indirect employees need be contemplated until the direct manpower reaches the B level.

Nonvariable overhead expenses are those which have little or no relation to fluctuations in the direct labor force or those for which the dollar amount is insignificant. When the accounting period is based on a calendar month, one twelfth of the annual amount is budgeted per month. When the accounting period is based on four or five complete weeks per month, these expenses are budgeted at a fixed amount per week. For example, the miscellaneous account in Exhibit 1 is expressed as $23.08 per week ($1200 : 52).

Fixed costs are those which are intended to remain the same throughout the budget period; variable costs are those which would be expected to vary with changes in the direct labor force. For example, stationery and office supplies indicates the relationship to direct manpower displayed in Exhibit 4. Based on the observations which cover the three operating levels, the relationship is linear and is expressed in a variable expense formula at $.021 per direct labor hour.

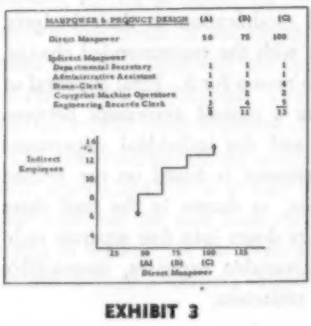


EXHIBIT 3

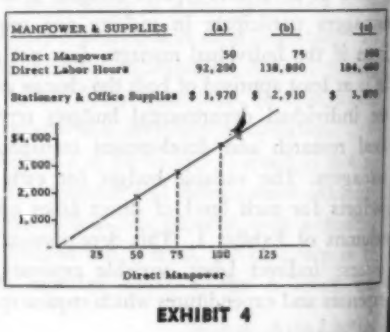


EXHIBIT 4

However, there is a fixed element in many variable costs, resulting in only partial variability when direct manpower fluctuates. For example, local telephone indicates the relationship to direct manpower disclosed by Exhibit 5. Based on these observations, the relationship is semivariable and is expressed as $19.23 per week (fixed) plus $.022 per direct labor hour (variable).

MANPOWER & TELEPHONE	(a)	(b)	(c)
Direct Manpower	50	75	100
Direct Labor Hours	92,200	138,800	184,400
Local Telephone	$3,000	$4,050	$5,050

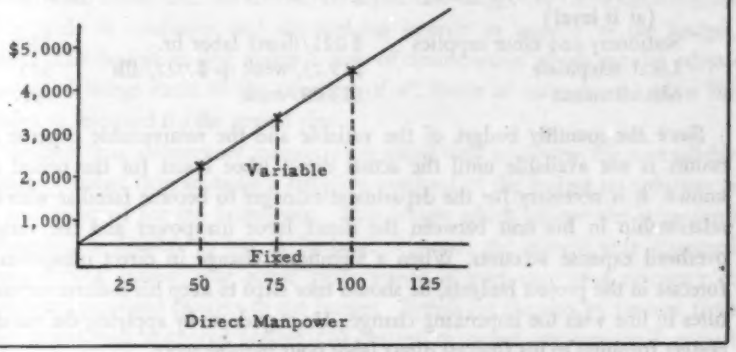


EXHIBIT 5

These formulas are developed for both the controllable and assignable (non-controllable) overhead expense account in each department. The formulas, together with the approved annual budgeted amounts shown in Exhibit 1, are distributed to the individual managers. The controllable expense formulas remain unchanged for the entire year. The assignable expense formulas are adjusted for any change in company policy on fringe benefits or for any major expansion or contraction of departmental areas requiring a re-allocation of depreciation expense. Thus, the assignable expense variances are deliberately minimized in importance.

An outstanding example of an exception to the formula technique is the budgeting of the overtime premium account which, in many companies, is treated as an overhead item. This problem may be approached from one of two ways: overtime premium may be established at the beginning of the year on a fixed basis predicated on a long-range estimate or overtime may be approved at

the beginning of each month by the director of engineering and applied monthly to the overtime premium budget.

The budget formulas are developed for each department and are applied to the monthly reports on the basis of the number of weeks in the accounting period and/or the number of actual direct labor hours reported. Indirect labor cost at the specified level is varied by the number of available work days in the period. For example, the budget allowance for the preceding accounts are computed as follows:

Conditions: 4 week month, 20 available work days
11,300 direct labor hours reported

	Formula	
Indirect Labor—Non-exempt (at B level)	$168.88/day	$3,378
Stationery and office supplies	$.021/direct labor hr.	237
Local telephone	$19.23/week + $.022/dlh	325
Miscellaneous	$23.08/week	92

Since the monthly budget of the variable and the semivariable expense accounts is not available until the actual direct labor hours for the period are known, it is necessary for the department manager to become familiar with the relationship in his unit between the direct labor manpower and the various overhead expense accounts. When a significant change in direct manpower is forecast in the project budgets, he should take steps to keep his indirect expenditures in line with the impending change. He may do so by applying the variable budget formulas to his forecast direct labor hour requirements.

Analysis and Control of Variances

Monthly indirect expense reports showing variations from budget are the primary tool of the department manager in controlling his overhead expenses. These reports must be timely, accurate and uncomplicated. Recognizing that the budget is an operating plan and that no plan is perfect, the main purpose of monthly reports is to locate areas where deviations from the plan have occurred. With the assistance of the budget analyst, the manager is then expected to analyze all significant variances, take corrective action and make a satisfactory explanation to the next echelon of management. It is important that each party concerned realize that not all negative variances are bad. Some may indicate an unanticipated service rendered, approved by management, which is not included in the budget.

A way to implement the analysis and control of variances is to schedule a meeting at least every quarter between each department manager and the budget

analyst. These meetings, held in the operating department, serve a dual purpose. They enable the department manager to obtain the budgetary assistance he requires and they help the budget analyst to gain an insight into the manager's operating problems in their engineering environment.

Second Year

During the first year, the variable overhead expense budget and the follow-up meetings tend to stimulate the interest of the operating managers to the degree that their understanding of the system is almost complete. The results of the first year will also bring to light many discrepancies in the budget itself. It has been found that an attempt to adjust the budget for these discrepancies only leads to confusion and diminishing interest in regards to the budget, itself. The budget analyst makes a note of discrepancies which require adjustment and brings them to the attention of all levels of management when the budget is reviewed for the second year.

At that time, department managers are asked only to review the controllable expenses rather than to make a complete overhaul of the budget information as it was collected for the initial year. This review which utilizes the same form illustrated in Exhibit 1, has as its basic reference the current year approved budget. The current year actual performance is used only as a reference in justifying proposed changes to the budget. Significant changes by account from the current year approved budget (10 percent or more) are explained as part of a narrative statement. This statement, prepared by each department manager, outlines the program which is to be followed by the department during the coming year.

If the variable budget plan has succeeded in establishing control at the departmental level during the first year, the higher echelons of management will normally be divorced from the detailed inter-workings of the system. Consequently, at the time of review and approval, they well tend to use actual experience as the sole criterion of approval. At this point, it will be necessary to re-indoctrinate management to the fact that the variable budget is a proven tool, to be adjusted only on the basis of a change in operating method or because of an outstanding discrepancy in the budget. Exceptional non-recurring circumstances which tend to distort actual performance cannot be used as a basis for adjustment of the variable budget. The role of the controller in approving the variable budget for the second year is minimized. He joins the budget analyst in analyzing the proposed variable budget for each department and comments in regards to unrealistic rates. The final review and approval, however, should be

among the director of engineering and the various division and department managers. In this way, the variable budget becomes their tool of financial control.

Underlying Relationships Must Be Understood

The variable budget will not provide other than academic interest unless all levels of corporate and local management understand and accept the basic relationship between volume and overhead expenses in the various areas of the research and development installation. The true measure of its success is whether or not these same managers have become accustomed to making practical use of this technique in the actual planning and operation of their respective areas. Practical application of the variable budget will result in both the control of costs and the definition of a mutually acceptable goal between first-line and executive management. All successful control techniques must be established on this basis, so that the line engineer may be free to pursue the technological competition of today in an atmosphere of economic stability.

"Standard" Features of Standard Costs

by D. L. PATE*

EXPERIENCES related in the article by William J. Fox, entitled "How We Provided for Variances in Converting to Standard Cost," which appeared in the October, 1958, issue of the *N. A. A. Bulletin* indicate that a major systems change was undertaken. No doubt a wise decision was made in electing to adopt a standard cost system through which a more representative measurement of performance could be furnished management. Upon closer examination, however, the question arises as to whether or not a full and complete solution was reached under the new costing structure as described.

It is understood that different types of processing costs impose special requirements upon standard accounting coverage and, in this case, piece-work

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accounting was highlighted. Certain aspects of the article, however, indicate questionable treatment of variances during the transition period from actual to standard cost. An example is the statement that, "a certain amount of discomfiture is the difficulty which will arise in comparing performance of the company's activities under its first standard costs with prior periods." It is difficult to imagine that operating performance measured under a standard cost system would ever approximate performance based on past actual cost performance trends.

The highlighting of "out-of-line" costs through variance is inherent in the standard cost system, facilitating management by exception. Standard costs based upon engineered standards embodying a practical low-cost operating plan to produce normal volume of salable product, provide the basis for developing budgets to be used in measuring performance. These standards are based on standard operating practices using existing facilities and should not be revised except for a "bona fide" change in practice, facilities or normal volume shipments. Comparison of actual cost to this standard cost yardstick provides management with a sound basis upon which to plan future finances and little discomfiture should be occasioned by such comparison. In other words, after adopting a standard cost system, comparisons should be made with standards and not with past experiences.

Another comment in the article, which raises question is, "Variances on purchased parts would be a tough proposition to eliminate." This is of course an understatement. Under a standard cost system, it is questionable that an attempt should ever be made to eliminate price variance on purchased materials, especially if outside purchases are made in substantial volume. It is doubtful that the elimination of such a variance would ever be practical in the light of the immense task of maintaining standards to recognize the ever-changing invoice prices of purchased materials. Further, these variances, as stated in the article, are allocated to the items purchased and, as a result, afford a true cost per unit upon which to base the cost of sales.

An inspection of Exhibit 5 of the article would suggest that too much flexibility is allowed in favor of the machine operator. Normally, for a given size, or type, of product, the same standard processing rate factor is applied to maximum or minimum lots of production. The recognized factor for any adjustment is usually made in the number of tool setups, which is generally more numerous per net ton on small production lots than on large production lots. The arbitrary assignment of $3.20 to direct labor and $.40 to excess payment due to small lot orders seems to represent an additional payment to the operator for a lesser quantity of production. Further, this excess payment is not

rightfully classified as indirect labor costs. Possibly an incentive plan to make sure of more production per machine operator is an alternative.

With respect to the statement that, "it would be virtually impossible to force our manufacturing personnel into a standard process method," it is difficult to imagine a representative standard cost system which does not recognize each standard facility of production. Revisions to standards recognizing new facilities, significant changes in standard practice, etc., must be made currently if an up-to-date system is to be maintained. If these changes are not incorporated into the system at periodic intervals, the purpose of the system is defeated and management will be plagued incessantly with variance explanations due to obsolete standards and inadequate standard coverage.

The idea that "production men know that, as long as the right quantity is started, it is relatively easy to get them finished," is without foundation, other than on the basis of trial and error garnered from individual experience. It would be a much better system if a basic standard allowance was pre-set in order to obtain variances from standard which would pinpoint areas for corrective action and aid in eliminating losses, however small they may be.

Even though a finished product is termed a "specialty" (as noted on page 54), if there is a continuous demand by customers for this product, certainly an individual standard should be installed. The fact that a variance is shown to management for this type of product, measured from a standard cost meant for other products, is only doing part of the job. Distortions of product cost could easily arise from this method of accounting.

"The proof of the pudding in any cost system is whether or not you have provided management with something better than it previously had" is a good start but cannot be the ultimate goal. With the steps already undertaken in adopting a standard cost system, as indicated in the article, further refinements are in order and no doubt will follow.

Explaining Depreciation - A Conference Drama

by RICHARD K. HILL

Scene—Executive offices of The Little Wonder Hinge-Pin Manufacturing Company.

Cast and Characterizations

Phineas P. Pinwhistle, President—Typical pompous, egocentric corporate executive as portrayed in movies and fiction. However, he is capable of shifting quickly in his questions and summaries to the sharp incisiveness of the natural leader.

Lester Q. Foghorn, Sales Manager—Complete extrovert—full of enthusiasm for his sales plans and the product.

Ticonderoga Penciltwiddle, Chief Accountant—Slightly on the defensive, since his profession and output are in question. However he can be definite and convincing when quoting the authorities and practices of the profession.

Silas Slipstick, Engineer—A man out of his element in a meeting of executives and administrators. His views differ from those of the majority, but he fights back with determination, even though he knows he has little chance to win.

Two Vice Presidents—For the purpose of the play, they act as "yes" men to the President.

(As the curtain opens, the President, Phineas Pinwhistle, is seated at center. At each end of the table, a vice president is seated, leaving room beside Pinwhistle for the three characters yet to enter.)

PRES. *(Irritably)* It's almost time for this meeting to start. The other boys *should* be here in a minute.

(Foghorn Enters)

PRES. Come in, Foghorn, come in and have a seat. Have you seen anything of Slipstick?

RICHARD K. HILL, Dayton Chapter, 1954, is Assistant Treasurer of The Dayton Malleable Iron Company, Dayton, Ohio. Prior to his present position he was Assistant Purchasing Agent and Supervisor of General Accounting for the same company. Mr. Hill attended Sinclair College, Dayton, Ohio.

SALES MGR. Yeah, he was coming down the hall as I came in.

(Slipstick Enters)

ENG. Am I late, Chief?

PRES. No, not quite. Anybody seen Penciltwiddle?

SALES MGR. Nope, he must be buried in a ledger.

ENG. "Buried" is right. His figures are dry and musty enough.

PRES. That reminds me why I called this meeting! I've been reading over our financial statements and comparing them with reports from other companies. All I usually pay any attention to is the current ratio profits, and the retained earnings—for dividend action; but I noticed differences in the method of reporting fixed assets and reserves for depreciation. Some companies reported their fixed assets at cost; some at appraised value; some at cost adjusted for differences in purchasing power!

SALES MGR. I've noticed that, too. Seems like they can't stick together.

PRES. Some of the statements had "reserves for depreciation," as a caption; some mentioned "reserves for amortization" and a few had "reserves for depletion." I got so confused trying to figure out what they mean that I've called for Mr. Penciltwiddle to come up and translate this accounting jargon into plain everyday English so we mere mortals can understand it. You'd think that, if accountants are going to produce statements for people to read, they'd at least use terms we could understand. Right, men?

ALL Right, Chief.

PRES. I'm glad to see that you're all wise enough to feel the same way about it that I do. I get rather tired of these professions where they use obscure terms to look important. Take the medical profession for instance; they say a man has "coryza," and a "pernicious pertussa". Why in blazes can't they say he's got a cold and a bad cough. Right, men?

ALL Right, Chief!

PRES. That's why I've asked Penciltwiddle to come up here and try to explain why they don't say what they mean on financial reports! Right, men?

ALL Right, Chief!

PRES. By the way Foghorn, how is that new advertising campaign coming? Have we done anything concrete to make the public "hingepin conscious"?

SALES MGR. Mr. Pinwhistle, we've really gone all out this time! We're running ads in all the papers and magazines, spot announcements on radio and TV, and we have also hired school children to pass hand-bills in ten cities, all emphasizing our theme: "your *door* is worth more, with a little Wonder Hingepin." We look for great things from this line of attack.

PRES. Fine, Fine. We've got to make the average man "hinge-pin conscious!" Right, men?

V. PRES's. (In Chorus) Right, Chief!

(Enters Penciltwiddle)

PRES. Well, here comes Penciltwiddle now. Come in and sit down, Ti. In my inter-office memo, I asked you to be prepared to explain some of the gibberish you people use in reporting fixed assets on the financial statements. Since I sent the memo to you early this morning, you've had a whole half-hour to prepare! So you should be able to explain fully what these statements are trying to say. Right, men?

ALL Right, Chief!

ACCT. I'll try, Chief. What seems to be the trouble? Where are we not clear in our reporting?

PRES. Usually all through the whole statement but, right now, we want to know why some of you accounting people use different terms for the same thing. Some of you say, "depreciation," some of you say, "amortization" some say "depletion." Why can't you get together?

ACCT. Well, Chief, I don't want to arbitrarily contradict you, but those terms do not mean the same thing. They are different in meaning, and different in application.

PRES. Oh! Well, how are we supposed to know that? Isn't there a simple way of presenting financial statement data so that we don't have to learn a special language to understand it?

ACCT. Modern corporate reporting is a complex thing. There are so many factors that shareholders, management, and financial institutions should know about a company that certain standard headings and identifications have come into use. A sort of verbal shorthand or code to mean specific things. We encounter this in every day life, where the subject is complex. Take a railroad or airlines schedule, for instance. You must learn a code or set of symbols, from the index, to properly read the schedule. If each caption and note were fully written out, it would wind up the size of Webster's Collegiate Dictionary.

PRES. You mean like the stock market reports in the Wall Street Journal where they use abbreviations, codes and symbols to shorten up the space required to get the information across. Right, men?

ALL Right, Chief.

ACCT. The same principle applies to corporate financial statements. If all the captions used were defined in an appendix, it would be a rather large appendix, much larger than the statement itself, like the tail wagging the dog.

Since it isn't practical to include a glossary, the public accountants and the accounting societies are constantly working to standardize, as far as possible, the terms and captions used in financial reporting. Also, the stock brokerage firms and investment counselors furnish to their clients and prospective customers books and pamphlets on how to read and analyze a balance sheet. Your broker would be glad to furnish you one on request.

PRES. I didn't realize that—I'll have to get one—but what we want to know is, what the heck *are* the differences between amortization, depletion and depreciation. Right, men?

ALL Right, Chief!

ACCT. Well, let's start with amortization. In the dictionary sense, the word means "delay." In an accounting sense, it represents a charge off to costs on a time-basis of an intangible or non-physical asset. The time-basis used can be known and definite or an arbitrary time set by the circumstances. Amortization is usually applied to bond premiums, leaseholds, organization costs, patent rights and catalogue costs.

SALES MGR. This new catalogue we're putting out; we hope it will last for five years—amortization would refer to spreading the cost over the five years it will last?

ACCT. Right, you are. But there's another use of the term. The Treasury Department uses the term "Amortization" to designate the extraordinary and rapid depreciation of "war facilities."

SALES MGR. Oh, then, if the word amortization is used in the fixed assets section of the balance sheet, it refers to the rapid write off or Government certified emergency facilities and, if it occurs in the intangible assets section, it measures the loss in value of the intangible.

ACCT. Very well put; that sums it up very neatly.

SALES MGR. Well, you accountants haven't a priority on brains and common sense. We can understand things if they're properly explained. Right, men?

ALL *(Dead silence)*

PRES. *(with a glare at the Sales Manager)* That takes care of amortization, now how about depletion?

ACCT. Depletion measures the removal to market or to processing of nature-stored materials, such as oil, coal, gravel and timber. The original asset is set by engineering estimates and, as the natural deposit is reduced or depleted, the reduction in value is referred to as "depletion."

PRES. Then depletion usually refers only to natural resources?

ACCT. Right—the wasting or extinguishment of mineral deposits is another example of depletion.

PRES. Fine! Now how about depreciation?

ACCT. Depreciation is the process of spreading the value of a fixed asset over the accounting periods comprising its service life. Another definition could be, "An allocation of the entire cost of depreciable assets to the operating expenses of a series of fiscal periods." Depreciation is also described as "the accounting for the consumption or the wasting of invested capital." The meaning of all these definitions boils down to that of assigning the cost of the property to the accounting periods included in the service life.

ENG. Then depreciation is a description of the constitution of the machinery or buildings. As they become worn or obsolete, their age and deterioration are measured through depreciation.

ACCT. No, not exactly. Depreciation was formerly rather generally regarded by accountants as the physical deterioration of a tangible asset caused by wear and tear and the action of the elements. As a result of recent developments in accounting theory, this concept of depreciation is regarded by many accountants as unsatisfactory. Depreciation is an expense. It applies to the investment in the asset rather than to the asset itself or its physical condition. Placing the emphasis on exhaustion of the investment, rather than exhaustion of the asset, might not satisfy an engineer, who is concerned with depreciation as a physical function, but it is useful emphasis to the accountant who is concerned with the erosion of fixed asset costs and their absorption as expenses into the stream of operations.

ENG. *(Heatedly)* Now wait a minute, damn it! You mean to tell me that the reserve for depreciation is not actually a measurement of the physical condition of the machinery? I can't buy that! If a machine is half worn out, it's 50 percent depreciated as far as I'm concerned.

ACCT. From an engineering or appraisal standpoint, you're absolutely right.

ENG. Well, then, what's this baloney about depreciation not having anything to do with the condition of the machines?

ACCT. The public accountants and the tax people don't see it your way. They believe that the cost of fixed assets is actually a massive deferred charge to expense. The reserve for depreciation indicates only the portion of the cost that has been charged off to expense, regardless of the wear and tear on the machine.

ENG. I just can't understand that entirely. I still think depreciation should indicate the physical condition of the machine.

SALES MGR. Whoa, Silas, you can't mean that literally! How about that special milling machine we bought a couple of years ago? Then the hinge design changed and the machine is obsolete. Its practically brand new, yet it's

almost worthless in its sales value of output. Do you think we shouldn't take any more depreciation on it because the physical condition isn't changing?"

ENG. Well, I guess in that case I'm wrong. Ti, what *do* you do when machinery might become obsolete and worthless?

ACCT. We can't do much except continue to depreciate the original investment cost over the original estimated service life, unless we can work out an adjustment of the service life with the tax boys. Some accountants take possible obsolescence into consideration when they establish the original service life.

SALES MGR. Tell me, Ti, I've heard someone say that the reserve for depreciation is for the purpose of recovering funds to purchase new machinery to replace the old when it is worn out and that, because of inflated prices, the reserves and the depreciation rates are not sufficient to enable us to replace the machinery at the original cost—and we poor sales people have to sweat to get more business to make profits that will compensate for this difference.

ENG. Humph! I'd like to sweat like that on your expense account!

SALES MGR. What are *you* crying about? I never saw *you* starving on a field trip!

PRES. That's something I've been meaning to look into, but let's get back to the subject! Ti, aren't we getting enough funds back from the reserve for depreciation to replace our equipment without using some of our profits to help?

ACCT. The idea that the reserve for depreciation is to provide funds for the replacement of machinery and buildings is a rather common misconception. Many people believe that depreciation is an expense for which a cash disbursement will be made in the future to replace the assets, and that the depreciation provision somehow provides for this future expenditure. From the accounting standpoint, however, depreciation is an expense for which the cash expenditure was made in the past. Any future expenditures for fixed assets will be capital expenditures which will subject the operations to a new series of expense charges.

PRES. Great Scott! You mean we aren't actually providing for the purchase of new equipment? That the reserve for depreciation isn't the fund that will buy our replacement equipment?

ACCT. That's right, it isn't. The reserve for depreciation is an asset valuation reserve that measures only the reduction of the asset value as it is written off to costs of operations.

PRES. Why don't we set up a fund for replacing machinery, then?

ACCT. The establishment of a fund for new machinery is not customary,

since it would remove from working capital cash that could be used in operations to earn a higher rate of return than could be obtained as income on fund investments.

PRES. That puts management in a real bind. When we need money to replace equipment that costs much more than the original cost of the machinery to be replaced, we only have two places to go. If we borrow from outside sources merely for equipment replacements, the stockholders suffer, in effect, a dilution of their investment. If we raise our prices to increase profits, we have to raise them high enough to provide not only the replacement funds but the income taxes, which come out first.

SALES MGR. Let's not go raising any prices just to buy equipment. I have enough trouble with the customers now. The Hanging Hinge Company purchasing agent claims we're stealing them blind already.

PRES. Even if we do boost our prices, it would be hard to retain the after-taxes funds, what with stockholders wanting increased dividends, labor wanting increased rates, and politicians proposing to increase the tax rates on so-called "excess" profits. Why can't we value our fixed assets on the balance sheet at replacement costs to reflect the change in purchasing power of the dollar and the inflation in machinery prices, and charge off increased depreciation? Wouldn't this increase our operating costs enough to provide cash and yet not reflect it in profits?

ACCT. This was a popular idea some years ago. Many companies attempted various devices to show their fixed assets and reserves for depreciation at either replacement a value or at cost adjusted to the purchasing power of the dollar through price indexes. I happen to have here an example of why some companies believe that price indexes should be used to adjust the cost of fixed assets. I've called this Exhibit 1. It shows the effect of the decline in purchasing power on costs and depreciation. *(Passes out Exhibit 1)* The people who advocate stating depreciation at current dollar value adjusted by price indexes contend that an adjustment to cost and reserves for depreciation would be fairer to the manufacturer. *(Explains schedule)* According to the schedule, the depreciation on an adjusted basis of $17,500 would be the equivalent of $10,000 total depreciation in original cost dollars. This procedure would write up the fixed asset costs and reserve for depreciation to replacement costs.

PRES. It sounds good to me—why don't more people do it? Right, men?

ALL. Right, Chief!

ACCT. For one thing, depreciation based on other than original cost is not deductible for Federal income tax purposes. Another reason is that replacement costs today are not a sure measure of what it will cost to replace the assets

EFFECT OF RISING PRICE LEVEL ON DEPRECIATION OF A $10,000 MACHINE WITH A 10-YEAR SERVICE LIFE

Year of service	Assumed original cost depreciation	Index of prices (Date of investment=100)	Purchasing power equivalent of depreciation charge Col. 1 x 100/Index	Number of current dollars required to equal depreciation in original dollars Col. 1 x Index/100
1	$ 1,000.	110	$ 909	$ 1,100.
2	1,000.	130	769	1,300.
3	1,000.	150	667	1,500.
4	1,000.	170	588	1,700.
5	1,000.	190	526	1,900.
6	1,000.	200	500	2,000.
7	1,000.	200	500	2,000.
8	1,000.	205	488	2,050.
9	1,000.	210	476	2,100.
10	1,000.	215	465	2,150.
TOTAL	$10,000.		$ 5,888	$17,800.

EXHIBIT 1

at some time in the future. You would need a turban and a crystal ball to know, not only the price levels, up or down, in future years but also the amount of replacements to be made in any future year.

ENG. That shouldn't be hard for *you*, Swami! Everytime I want a new piece of equipment, you pour cold water on the deal, claiming we won't have the cash for many months in the future!

SALES MGR. That brings us right back to the point. To buy new equipment, we have to sell a hell of a lot of hingepins to get the necessary profits. That throws a terrific burden on the sales staff and makes our job tough!

PRES. I'm glad to see that Foghorn agrees with me. We need over $40,000 in profits, half of which goes to the "infernal" revenue for taxes, to buy a $20,000 machine to replace one that originally cost $10,000. That's an almost impossible sale burden to carry.

ACCT. It's not quite as bad as it sounds. The $20,000 machine replacing the older one most usually has a much higher and more efficient productive capacity. Some of the larger machines are automated, with a corresponding decrease in labor cost to operate. So, with a greater productivity than the machine it replaces, and perhaps a labor cost decrease, much of the dollar gap between the old machine and the new is taken up by greater return on investment.

SALES MGR. Say, I never thought of that! To oversimplify the idea, you could say that if a machine costing twice as much in dollars as an old machine had twice the productive output as the old machine, with twice the dollar sales value of production, the net result would wash out.

ENG. Listen to him—he's talking like an expert!

SALES MGR. I'd rather not be called *that!* Don't you know what the definition of an "expert" is?

ENG. Nope! Enlighten me!

SALES MGR. Well, "ex" means an unknown quantity. And a "spurt" is a drip under pressure!

(All chuckle)

PRES. Humph! Well, as I was saying, we've been talking about depreciation. What is the big idea behind these methods of depreciation that give you a larger write-off to costs in the earlier years and a lesser one in the later years? You accountants keep talking about each accounting period bearing its share on an equal basis with each comparable period over the service life of the machine. Don't these methods contradict that very idea?

ACCT. No, not really. One of the objections to the straight-line or same-amount-each-year method of depreciation is that the older a machine gets the more repairs it needs to keep it in operating condition. Many accountants specializing in fixed asset accounting consider the cost of repairs as much a cost of operating the machine as depreciation. They contend that, in the early years of the life of a machine when not many repairs are needed, the depreciation should be greater and, in the later years when repairs are heavier, the depreciation should be correspondingly less, so that the total cost of depreciation plus repairs tend to equalize over the life of the machine. I have a schedule which I have called Exhibit 2 which presents this in a simplified form to show the contrast between the straight-line method, the uniform-rate-on-diminishing-value method and the sum-of-the-years digits method. *(Passes out Exhibit 2)* Take a look at this schedule and the leveling effect of the newer methods is apparent. *(Explains schedule)* While the repair charges in this example are exag-

TOTAL COST OF DEPRECIATION AND REPAIRS
Cost of Machine $6,000 - Life 8 Years - Salvage Value $400.00

	Straight-line method			Uniform rate on diminishing value			Sum-of-the-years digits method		
YEAR	Deprec.	Repairs	Total Cost of Operation	Deprec.	Repairs	Total Cost of Opern.	Deprec.	Repairs	Total Cost of Operation
1	$ 700.00	$ 25.00	$ 725.00	$1,723.00	$ 25.00	$1,748.00	$1,244.45	$ 25.00	$1,269.45
2	700.00	150.00	850.00	1,228.21	150.00	1,378.21	1,088.89	150.00	1,238.89
3	700.00	300.00	1,000.00	875.51	300.00	1,175.51	933.33	300.00	1,233.33
4	700.00	500.00	1,200.00	624.09	500.00	1,124.09	777.78	500.00	1,277.78
5	700.00	700.00	1,400.00	444.87	700.00	1,144.87	622.22	700.00	1,322.22
6	700.00	800.00	1,500.00	317.12	800.00	1,117.12	466.67	800.00	1,266.67
7	700.00	900.00	1,600.00	226.06	900.00	1,126.06	311.11	900.00	1,211.11
8	700.00	1,100.00	1,800.00	161.14	1,100.00	1,261.14	155.55	1,100.00	1,255.55
TOTALS	5,600.00	4,475.00	10,075.00	5,600.00	4,475.00	10,075.00	5,600.00	4,475.00	10,075.00
Salvage value	400.00			400.00			400.00		
Total cost	6,000.00			6,000.00			6,000.00		

EXHIBIT 2

gerated, the principle is partly shown. The sum-of-the-years digits method works out best in the example for the particular assumed repair costs.

PRES. I hadn't heard this particular argument advanced for the accelerated methods but, by Godfrey, it has merit. Right, men?

ALL Right, Chief!

ENG. Well, it answers *some* of my objections regarding physical condition of the machines. But isn't there another depreciation method sometimes used based on production or time or some such base.

ACCT. Yes, there are two. One is based on units of production. A machine rated for 200,000 units of production during its service life would have depreciation for the accounting period charged to costs depending on the units produced in the period. Thus, in periods of low production, the depreciation and repair costs would be lower than in periods of heavy production. A similar method uses machine hours operated in the same manner to arrive at a charge to costs commensurate with hours operated. These, however, are favored only by those accountants and engineers who persist in relating depreciation costs to physical condition of the machine rather than to the generally accepted practice of equalizing the cost charge-off over a time period.

ENG. Maybe so, but it's the first method you've mentioned that *I* can agree with.

ACCT. But these methods entail greater administrative costs, since counters must be placed on the production unit machines and operating hours recorded, on the operating-hour method, by individual machines.

PRES. Let's stay away from those methods, then. Our clerical costs are too cotton-picking high now!—although after listening to all we have to go through, just on fixed asset accounting, I begin to understand why clerical costs are going up every year.

SALES MGR. Yes, and product costs are going up every year too. What do your accountants and their societies say about depreciation as a cost of manufacturing? If we recorded a profit before depreciation provisions, wouldn't that give us a better picture of our manufacturing cost than a profit after a non-cash cost expenditure like depreciation has been applied?

ACCT. No, certainly not. Depreciation is as much a cost of business operation as any other out-of-pocket cost. Prepaid insurance premiums are a deferred charge and the cost is charged off to expense in the accounting periods during the life of the policy. Yet you wouldn't show a profit caption, "before prepaid insurance premiums."

SALES MGR. No, I suppose not.

ACCT. At bottom, depreciation is as much an out-of-pocket expense as labor,

except that the expenditure is made in advance over relatively long periods of time, while labor is paid concurrently with performance.

SALES MGR. You say, then, that depreciation is a product cost?

ACCT. It certainly is! Depreciation on buildings is usually apportioned as a fixed cost on an area basis to the cost centers. Machinery depreciation is charged as a fixed cost to the centers in which the machinery is located. The depreciation charge is then indirectly charged to the product through the overhead rate of the cost center, thus becoming a part of the product cost.

PRES. I begin to see why these accounting captions and practices are standardized as much as possible. I didn't realize there was so much accounting procedure involved in accounting for fixed assets.

SALES MGR. I'm confused with all we've heard here. It seems to me that we asked Penciltwiddle for the time and he told us how to build a watch. Ti, can't you summarize the high points briefly for us so we know what we've talked about here, in capsule form.

ACCT. I'll try—*(Reads attached summary).*

SUMMARY OF PRESENTATION

(As read to the group by the Accountant)

1. *Amortization*—is the charge-off to expense on a time basis of an intangible asset. It also refers to the extraordinary rapid depreciation of war-time emergency facilities.
2. *Depletion*—measures the removal of nature-stored materials to market or processing from the engineering estimate of the asset value.
3. *Depreciation*—is the charge-off to expense of the cost of the tangible fixed asset over the accounting periods included in the service life of the asset.
4. Reserves, or allowances for depreciation measure the portion of the investment in the asset, which has been allocated to expense in the accounting periods to date.
5. Reserves or allowances for depreciation do not reserve funds for the replacement of fully depreciated fixed assets, nor do they indicate the physical condition of the assets.
6. The presentation of fixed assets and allowances for depreciation on the balance sheet at reproductive value or cost adjusted to purchasing power of the dollar is not recommended by the American Institute of Certified Public Acountants. Depreciation claimed on values other than original cost is not acceptable to the Internal Revenue Service.

7. Depreciation is an expense; depreciation is a product cost.
8. Depreciation computations on accelerated bases, such as declining balance and sum-of-the-years digits methods, have value in leveling depreciation-repair total expenses.

PRES. *(removes golf ball from pocket, bounces it lightly on desk)* Since I have a rather pressing appointment, I move we "knock off." Right, men?

ALL Right, Chief! *(all stand near chairs to signify end of play).*

How We Hire a Cost Accountant

by HAROLD E. LaPOINT*

WE LOOK FOR three things in the graduate accountant who is planning on entering the field of cost accounting:

1. Basic accounting knowledge.
2. Personality traits such as adaptability, curiosity, aggressiveness, ability to communicate, and a desire to learn.
3. Mechanical aptitude.

By basic accounting knowledge, we mean a thorough schooling in and understanding of the fundamentals of accounting. By personality traits, we mean, first of all, adaptability. Probably no other field of accounting is more subject to interpretation and procedural innovation than cost accounting. Adaptability must be coupled with a high degree of desire to learn. Desire must, in turn, be coupled with curiosity. The "why" as well as the "how" is equally important if the accountant is to become a valuable member of the management team. A reasonable degree of aggressiveness is also important. The best control information in the world is useless if it is not communicated to management.

The mechanical aptitude is an understanding of the processes of production. The ability to visualize the various processes taking place when examining the figures makes for the superior cost accountant. The figures then are a picture of the use of men, machinery, and materials by the manufacturing management.

We expect the graduate accountant to learn our methods of doing things, but at the same time we do not expect him to accept our teaching blindly. By questioning the procedures and by making suggestions, we expect him to contribute to our never-ending search for better methods of producing more meaningful information at less cost.

* Supervisor of Manufacturing Costs, Parts Division, Sylvania Electric Products, Inc., Warren, Penna.

Project Budgets for Cost Control in Aircraft Manufacturing

by W. W. HASS

EVERY DAY the news brings us all stories about airplanes, missiles, and space flights. New speed records are being established by jet-powered passenger airplanes; fighter planes fly higher and faster; missiles go farther into space. More money is being spent daily to extend this progress. More companies are participating in manufacturing the many new metals, products, and services to maintain this progress.

Our company is involved in all phases of these exciting developments. Activities range from research projects that border on science fiction to manufacturing of the most complex end products in industry. Manufacturing programs range from a single prototype unit to job-shop production, and often approach mass production. Test and change and test again are so inherent in this work that it can be said, "Change is our most important product." This range of changing activity includes probably every managerial problem known to modern industry.

The Need, the Projects, and the Project Budgets

It is common knowledge to all accountants that new products, and changes in old products, put severe strains on reporting and control of costs. Because technological change will keep accelerating, most industries will experience increased strains on cost controls. In any business, establishment of new standards of performance and the reporting of actual costs in relation to such standards should always be pursued for the control of costs. In the aircraft industry, however, there are too many changes in design, materials, and methods to obtain accurate airplane or missile costs solely or principally from standards and the allocation of variances from standards. Also it is too expensive to establish standard costs for a relatively small number of production units, or in such areas as design, experimental work, inspection and flight testing. Therefore, product costs must be obtained by accumulation of actual costs. Control is obtained from over-all product cost budgets with added control through standards wherever

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any type of standards can possibly be applied. Also in any business, it is necessary to provide some reporting and measurement of product costs in relation to product income. Sooner or later, each business must know how much profit it is actually making on each product. It usually requires several years to design, develop, and manufacture any quantity of airplanes or missiles. In this long cycle time, design and methods changes must be made to remain competitive—for peace or war. Therefore, for each project or product, cost control can only be maintained by providing the answers to two basic questions:

1. Where are we to date?
2. Where will this project wind up?

Any program on which management loses touch with these two yardsticks is headed for serious difficulties. For our business, therefore, a special form of product or project cost control is essential. This control is based on what we call project budget reports.

A project is best described by giving some examples of what is considered to be one:

1. A government cost-plus-fixed-fee contract for—
   Research-study or technical services.
   Development of new products or methods.
   Prototype-production for a small quantity of test planes or missiles.
   Flight test of initial prototype planes or missiles.
2. A government fixed-price contract, with or without a sliding scale of profit or loss related to cost performance for—
   A production quantity of airplanes or missiles.
   Spare parts, ground support equipment, mobile training units, etc.
3. Fixed-price commercial airplane programs for—
   Quantity of a specific model sold or anticipated to be sold.
   Spare parts, ground support equipment, etc.

These examples are not all-inclusive but are typical of the variety of products and contractual agreements which require separate project budget reports.

A project budget, in its broadest sense, represents the best judgment on how to spend money most effectively within the income anticipated from a particular project. It expresses, in terms of dollars (and direct labor hours) where we have been, where we are, and where we are going. It is complied in two basic breakdowns:

1. By areas of responsibility
2. By type of cost

Project budgets cover all elements of cost which a department may incur in carrying out its assigned responsibility. If the responsible department needs assistance, it must monitor the cost of such assistance. Control is established by reporting to the responsible department managers how their actual costs to date and indicated costs at completion are deviating from planned costs. At the start of most projects, contingencies must be provided for unknown tasks. Therefore, it is necessary to budget projects costs at a lesser amount than the costs included in negotiated or anticipated sales. Also, the budget for each responsibility is intended to be a challenge, but at the same time, is not intended to exceed the departmental capabilities to accomplish the known tasks.

PROJECT BUDGET REPORT - Model _____

Contract # _____ Type _____ Qty. _____ Dept. _____

Period Ended _____ Date Issued _____

Type of Cost*	Actual Costs This Month	Actual Costs To Date	Indicated Costs To Complete	Indicated Costs At Completion	Percent Complete	Budget Total	Indicated (Over) Under	Quotation Total	Indicated (Over) Under
Direct Labor Hours									
Direct Labor Rate/Hr.									
Direct Labor Cost									
Overtime Prem.									
Burden									
Raw Mats. & Pur. Pts.									
Excess Usage									
Obsoleted Materials									
Rework Costs									
Vendor Program Costs									
Cancellation Costs									
Subcontract Costs									
Misc. Direct Mats.									
Special Test Equipment									
Total Costs									
Fuel & Oil - Flight									
Travel & Per Diem.									
Extra Risk Comp.									
Others									
Sales Income									
Profit (or Loss)									
% Profit - on Cost									

*The following captions appear in this column:

figures under completion, budget and quotation columns only

EXHIBIT 1

What Management Gets — The Project Budget Report

Exhibit 1 is an example of a typical Project Budget Report. A separate budget is made for each project and for each major area of responsibility within a project. Examples of such areas of responsibility are:

Engineering

Design and technical

Experimenal (prototype) production

Wind tunnel testing

Experimental flight test

Customer Service
Service publications
Field service representatives

Tooling
Tooling engineering
Tool manufacturing
Plant engineering (production aids)

Manufacturing
Factory labor and burden
Production materials and subcontracting
Production flight test

Inspection — Manufacturing Development — Shipping

Exhibit 1 also indicates the major types of costs reported to each area of responsibility. The emphasis on direct labor hours will be noticed and also that several types of cost are considered direct which, in many industries, are regarded as overhead costs. Because of the variety of end products, accurate product costs can best be obtained by charging as direct costs all charges which can be identified to specific products. However, no item is regarded as a direct cost unless it can be consistently identified or allocated as a direct charge on all projects.

Exhibit 1 also indicates the relationships of actual costs to budget costs:

1. *Actual Costs—This Month* and *Actual Costs (Project) to Date* are obtained from the cost ledger. Our cost ledger is produced on a large scale computer. The cost ledger tape is converted to tabulating cards which are re-sorted and re-summarized by a small-scale magnetic drum computer to the project budget format and posted to the project budget reports. (Prior to 1959, these operations were performed on punched card equipment.)
2. *Indicated Costs to Complete* and *Indicated Costs at Completion* are supplied by each area of responsibility each month. These monthly estimates are their up-dated opinions of what will be needed in the future to accomplish assigned tasks for each project.
3. *Budget Total*—This represents the amount of dollars in cost (and direct labor dollars) which has been established to meet the profit requirements of the total project. It will be explained later how these budget amounts are developed.
4. *Indicated Cost (Over) Under Budget.* This is the variance between total budget and the latest indicated costs at completion of the project.
5. *Percent—Complete.* This is the ratio of actual costs to date to the total indicated costs at completion, for each type of cost within each area of responsibility.
6. *Percent—Budget*—This is the ratio of actual costs to date to the budget total cost, for each type of cost within each area of responsibility.

7. *Quotation—Total*—This is the value which has been negotiated, or is anticipated to be negotiated for the quantities, schedules, and tasks which are authorized for go-ahead.
8. *Indicated (Over) Under*—This last column is the amount of variance between total quotation and the latest indicated costs at completion of the project.

(The last two columns are not included on the project budget reports which go to each responsible department. Also, sales, income, and profit or loss are likewise not included on the project budget reports which go to the various areas of responsibility. The information on quotations, sales and profits are provided only to top management.)

The complete set of reports for each and every project are provided to the general manager and the controller. This set of reports reflects performance against budget and against quotation, not only for costs but also for income and profit.

Sources of Information and the Accounting Structure Required

Each major program requires a high degree of planning, coordination, and control. Specifications, work statements, responsibilities, and schedules need to be defined before an effective project budget can be established. Subsequent changes to the original plans must also be defined. The budget is developed as the expression of these plans in dollars and direct labor hours. Then, as work progresses, it will express the trends of performance against these plans in dollars and direct labor hours. The primary source documents used in the development and maintenance of each original project budget are:

1. Product plans
   a. Master schedule—issued monthly for all programs by the master planning unit; "Who will do what and when?"
   b. Work statements. "What needs to be done?" Issued by the engineering department.
   c. Manufacturing plan. "How it will be manufactured?" Issued by the industrial engineering department.
2. Estimates of cost and income
   a. Program study authorizations—issued by the master planning staff and supported by the engineering department's proposed statement of work, manufacturing, delivery schedules, etc.
   b. Cost proposal outlines—The cost proposals are prepared by the estimating unit from departmental estimates, similar in breakdown to the areas of responsibility and types of cost reported in the project budgets.

c. Change order cost estimates—prepared by the estimating unit.
d. Bid proposals—prepared by the contracts administration department.

3. Contractual agreements
   a. Negotiated contracts and contract changes.
   b. Sales orders—authority to proceed with work.
4. Historical information
   a. Actual cost performance on completed similar projects.
   b. Actual cost performance to date on the current project, reported so that it can be compared to the estimates and project budget patterns of reporting.
5. Forecast information
   a. Direct labor rates to be applied to forecast hours, from actual trends plus indications supplied by industrial relations.
   b. Burden rates to be applied to forecast hours, from the indirect budgets department.
6. Revised estimates of total indicated costs—monthly from departments responsible for costs to be incurred. These are based on the best estimating techniques applicable to each profession involved: engineering, tooling, production, etc. These techniques include standards, learning curves, bills of material, and history of past and current programs as reported on detail sub-work-orders in each area of responsibility.

It is important to say, at this point, that the source information outlined above is not available in neat and tidy packages. Planning for aircraft and missile development and production goes through a number of phases. During the first phase of planning and estimating, only general specifications of product configuration and delivery schedules are available. Work on projects must start, regardless of the lack of detailed design and planning, because of the long lead times required from design to delivery. To wait for such detail would result in producing planes and missiles which would be obsolete long before delivery. First estimates are often developed only from past history and in terms of costs per airframe pound and learning curve projections of direct labor hours and costs per ship. As each project develops, of course, more detail on specifications and tasks to be performed can be developed. By a continuing re-estimate of the costs to be incurred, more accurate indicated final costs are possible.

For each project, accounting work orders are assigned which indicate and accumulate actual costs by:

1. Project—Contract, etc.
2. Project Item—Airplanes, spares, ground support equipment, prototype production, etc.
3. Area of responsibility.
4. Production lots.

Account numbers identify the type of cost charges: direct labor, overhead, material, etc. This combination of accounting work orders and account numbers, then, provides for the reporting of product costs by area of responsibility, and type of cost, for each project. These accounting work order numbers are indicated on all orders to procure materials and all orders to do work as issued by each area of responsibility. Examples of these orders are purchase orders, sales orders, sub-work orders (engineering, tooling, experimental, flight test, etc.), and parts and assembly orders. Additional cost coding identifies one or more types of costs to departments and cost centers performing the task and to airplane ship number for factory direct labor hours. All of this data is processed either by tabulating machines or on a large-scale computer. All of the direct labor hours information is reported to the operating departments on a weekly basis.

How Project Budgets Are Prepared, Revised — and Used

Project budgets are developed and issued by a project analysis section within the controller's organization. Exhibit 2 reflects the relationship of this section to other functions of the business. Some major projects require several analysts; however, a single project analyst can administer quite a few smaller projects. Exhibit 2 is a flow chart indicating the flow of information to the project analysis section and from there to those who need to act on the basis of the proposed or completed reports.

Basically, the procedures for developing original project budgets and the procedures for making revisions to these budgets, are quite similar. Development of a project budget begins with the sales order authorization to start work on a project. The project analysis staff on the basis of source information from master planning, engineering, estimating, contracts, and other departments develops a project budget proposal. This proposal reconciles the economic differences between the final terms of a sales contract, with the cost proposals and original department estimates used to develop them. This may require a considerable amount of review with the responsible departments and estimating personnel.

The proposed budget is then reviewed with the general manager, controller,

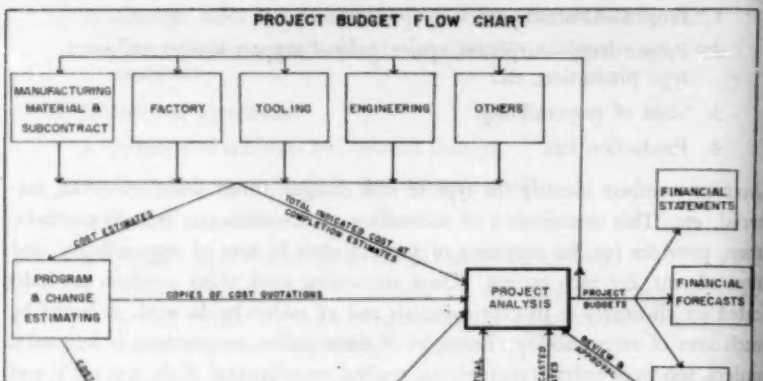

EXHIBIT 2

and responsible department managers. Project analysis includes with this proposal recommendations for the specific amounts it proposes as the total budget for each area of responsibility. The amounts agreed upon at this review are the budget for the responsibilities and tasks as defined to the date of the proposal.

Each month, the project analysis section requests each area of responsibility for up-dated re-estimates of indicated costs at completion. Accompanying this request are lists of authorized or anticipated changes, which are to be included in these new estimates. Departmental re-estimates must be accompanied by firm reasons for all increases or decreases from the previous estimate. Such reasons include:

- Customer paid changes
- Safety changes
- Cost reduction design changes
- Methods and facilities changes
- Changes in subcontracted tasks
- Improved performance
- Unanticipated tasks
- Material price changes
- Schedule changes

Estimates from departments are expressed in direct labor hours, and material and other costs only. Therefore, any changes in direct labor and overhead

rates are computed by project analysis. Each area of responsibility may request the general manager's personal approval of an increased budget. However, these requests can be based only on causes which can be demonstrated to be beyond the control of the department's assigned responsibility.

Once a month, project analysis personnel release the completed project budgets. They go to areas of responsibility for performance to budget only. This is for guidance to action on control of costs. They are released to the general manager for performance to budget and to quotation. This is his guide to action on the control of costs, with direct indications as to effect of cost trends on potential profits. Special control charts are developed for his use in reviewing significant cost trends with responsible supervision. The controller also utilizes the project budgets for reporting of current income, and for financial forecasts. The indicated rates of profit at completion are the guide to rates of profit (or fee) to be applied to current sales. By time-phasing the project budget costs to complete, a firm basis is established for semi-annual forecasts of related sales, profits, and cash requirements. Actual performance to forecast is compared and reported weekly, monthly and quarterly. There are many other uses of project budgets and many by-product reports are issued by project analysis staff from the basic data used in developing the project budget reports. Most of these reports are directed to support operating departments in their control of costs.

The project budgets, as stated before, are essentially product cost control reports. In spite of the difficulties in controlling costs of rapidly changing products, aircraft and missile manufacturers use every known method of cost control wherever it can be applied, to get useful control information. This includes:

1. Daily and weekly direct labor performance reports for all tooling and manufacturing departments, reporting actual hours vs. standard hours.
2. Direct labor hours by ship number, compared weekly to a forecast learning curve requiring steadily improved performance.
3. Weekly analysis of direct labor hours incurred on sub-work-orders: actual hours to date vs. budgeted and vs. revised estimated completion.
4. Weekly indirect labor budget performance reports for all departments on a fixed and variable allowance basis.
5. Monthly indirect budget performance reports for all expenses of all departments.
6. Weekly tabulations of actual direct labor hours vs. budgeted hours for the thousands of sub-work-orders issued to control costs where time standards cannot be developed.

7. Competitive bidding on all procurement and thorough evaluation of performance of past, present, and potential suppliers.

Summary of Advantages

The project budget reporting system has several very distinct advantages. The responsibility for costs is established. Knowledge of where we have been is supplemented by knowledge of where we are going. Review of cost trends is forced and automatic. The costs of a wide variety of products can be isolated to assure maximum profit performance on each. The system develops cost consciousness at all levels of management.

We believe that effectual control of costs is difficult in our business, but the desire to control costs is high. This desire is maintained by reporting actual costs against planned costs to the people who are responsible for specific areas of costs. The participation of top management in review and approval of bid proposals, indirect budgets, and project budgets assures that no area of responsibility will be overlooked. We like to say that a project budget is like the instrument panel of an airplane. The checking and reading of this instrument is a continuous process. Only by comparison of the reading with the flight plan can the pilot know how he has drifted and how much to adjust his flight pattern so that he can still arrive safely and on time.

How a New-Born Municipality May Make Reliable Financial Decisions

by WILLIAM J. McCANN

THERE IS one ingredient of success which all progressive organizations have in common, and that is a "future look" which is developed by long-range planning. The most successful long-range planning is that which comes up with the best answers today to some very practical questions about tomorrow. These answers or decisions on tomorrow's future must be based on sound financial data and analyses. This applies as much to a city as to a business. In the creation of a new municipality, immediate financial decisions must be made which will determine the city's future course. Each decision made, be it the selection of the city manager, the approval of the budget, the staffing of the various departments, etc., is, in effect, the result of important financial and management planning. Each area of financial responsibility and administration must be analyzed and all elements of cost, projected population, growth, economic conditions, and level of service, must be taken into consideration.

The City of Santa Fe Springs, California, was founded in 1956. Elections were held and the city council was selected to represent the constituents. We have now completed two very successful years, and the future outlook promises even more prosperous horizons. Each of the points presented in this article is based upon the problems which faced the city council and the manner in which we coped with them.

The paramount organizational and financial problems of a newborn municipality, can be classified as follows and will be taken up in the order given:

1. Formulation of the organization chart
2. Appointment of city manager and financial director
3. Development of the chart of accounts
4. Immediate problems requiring financial decisions
5. Preparation and approval of the budget
6. Recognition of the responsibility for planned financial future

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Organization Chart; City Manager; Financial Director

Our city chose a city manager type of government. It must be immediately recognized that the structure of the city's organization should be as simple as possible and should be clearly defined. Employees, the press, and the general public must be able to readily ascertain lines of authority and responsibility with regard to the various city offices and positions. The line diagram chart is the clearest and easiest-to-grasp form in which to present this information. (Exhibit 1).

Sound business principles must be applied in a municipality if it is to be financially successful. Such principles demand that the most capable persons available be obtained to fill the key positions of the administration and, if necessary, the assistance of specialized consultants in the municipal field should be utilized in order to attain this goal. If the best talents of the country can be continuously recruited and held, efficient local government is assured and adequate authority can safely be delegated. The mechanisms of financial administration should be designed to coordinate and liberate the activities of such talents and not destroy their incentives. This means that the primary emphasis of the accounting system must be placed upon fostering administrative responsibility. On this foundation, the super-structure of legislative control is secure. Care should be especially taken to employ the best qualified city manager prior to hiring any other permanent employees or formalizing a recruiting plan. Immediately after the selection of the city manager, every effort must be expended to have the manager hire the financial director and other staff assistants in order to establish financial activities and policies as rapidly as practicable.

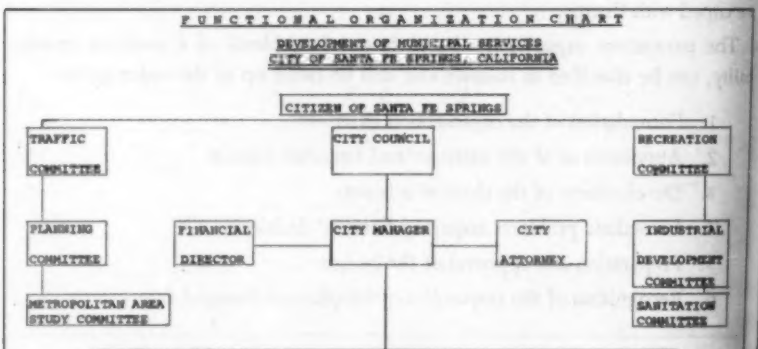

EXHIBIT 1

The financial director is an administrator, not a technician. Financial administration is not merely the endorsement of fidelity of accounting through the examination of paper conformity. The vitality of administration is in operations. The financial director is responsible for accounting and costing functions, for budgeting, for measuring performance against approved operating plans and standards, and for reporting and interpreting the results of operations to all levels of the municipal management. As he is constantly in touch with the problems which face management and is used by his colleagues to provide information at the earliest stages of policy formation, the financial director must develop the interpretative function of accounting and relegate the recording function to a subordinate position. His attitude should be that of accounting for management and planning purposes and not accounting for accounting's sake alone.

Development of the Chart of Accounts

The principal objective of a chart of accounts is to provide information which can be used in administrative control. This is dollars and cents information. There should also be maintained, with equal accuracy, information relating to work units or work standards. When the two are tied together, as they should be, the basis is laid for effective budgetary control.

The heart of management control lies in the ability to secure timely information; hence, planning is no better or worse than the information on which it is based. Without this information, the administrator and the legislator cannot make intelligent decisions. The National Committee on Government Accounting, the League of California Cities, and California Society of CPA's have recommended a standard classification or chart of accounts to account for municipal revenues and expenditures. These provide an excellent guide for a particular jurisdiction; however, allowances should be made to accommodate the different temperaments and peculiar situations which are inherent in each city. Any deviation from these state and national standards must be necessary and practical in order to insure proper citizen interpretation and to avoid problems in community public relations.

The accounts are normally maintained on a cash basis in accordance with the balanced fund principle of governmental accounting. Revenues are recorded only when received. Expenditures or commitments are not recorded until the disbursements are made; however, adequate expenditure control is accomplished by means of a system of encumbrance records. Encumbrances are established at the time of purchase order and, in some cases, if large amounts are involved,

when the requisition is forwarded from the operating department for processing.

The financial activities of a city are recorded through the establishment of funds in accordance with the requirements of state law and the actions of the local governing body. The following funds are presently in use in our city:

1. *General Fund* — Revenues for this fund are derived principally from the city's taxing and licensing powers and certain types of subventions. Primary sources of revenue to the general fund are the city's share of sales and use tax, franchise tax, the motor vehicle in lieu tax, business licenses, and similar types of revenue. These revenues are used for general activities.
2. *Traffic Safety Fund*—Fines and forfeitures imposed by the pertinent judicial districts for violations of the motor vehicle code and various ordinances within the city are remitted by the appropriate court. As required by law, these remittances are deposited in the traffic safety fund and are used for state purposes as defined in the motor vehicle code. This fund has been used primarily for police protection, although the law also allows its use for street maintenance purposes.
3. *State Gas Tax Fund*—Two funds are grouped under this heading. The special gas tax street improvement fund is used to account for allocations of gas tax money received from the state. Expenditures are restricted by state law to construction of and maintenance of streets included in the major street system of the city. Allocations from the county are maintained in the county aid to roads fund which is used only for budgeted construction projects appropriate to the use of this money.
4. *Lighting District Funds*—Revenues are received directly from the county and represent the city's portion of certain assessments in the lighting districts. Expenditures are generally restricted to the maintenance and operation of lighting in these assessed districts.

The prime factors to be considered in the design of a chart of accounts under a government accounting system are:

1. Accounting systems should be designed to show compliance with legal provisions.
2. Accounts which show the commitment and disbursement of monies must be related to budget accounts embodying requests for new expenditure authority, that is, budgeting and accounting must be components of an integrated system of fiscal control.
3. Accounts must be set forth in such a way as to permit a determination of the adequacy of custodianship of monies and assets under the responsibility of administrative officials.

4. Accounts must be maintained on a basis which will permit an independent audit extending to all records, funds, securities, and property.

5. The accounting system must provide the full disclosure of the results of the financial activities, including the measurement of revenue and the costs of activities, programs and level of service.

6. The accounting system must incorporate effective procedures for internal control, control of operations and programs, and internal pre-audit.

7. The accounting system must provide the information necessary for the economic analysis and effectual planning and direction of governmental activities. This information should be presented in a form which is useful for both administrative and legislative purposes and should be presented with a timeliness which will not void its usefulness.

Flexibility in account classifications must be preserved but within a pattern of over-all uniformity and in conformity with recommended classifications. Just as governmental programs differ from agency to agency, so can account classifications differ slightly if different needs are to be served. When formulating a chart of accounts, the eventual utilization of mechanical or machine bookkeeping must be considered, so that future change-over from hand posting to a mechanized system can be made with a minimum of disruption in day-to-day procedures. The Chart of Accounts Numbering System depicted in Exhibit 2 is adaptable to bookkeeping machine or tabulating equipment, if need for such should arise in the future. To illustrate, expenditures for street sweeping services might be charged to account 0-312-27 for the following reasons:

0—Indicates general fund.

312—Indicates expenditure account for street cleaning.

27—Indicates contractual services.

The accounting principles to be in force and the chart of accounts developed from them should be simple and flexible enough so that almost any layman can understand them. However, there should be sufficient detail to cover all the necessary items required by reports to various governmental and private agencies. For example, sufficient detail should be developed into the system to enable clerical help to transcribe data directly from the records, in order to prepare the state controller's financial report without undue analysis. Records used for accounting and bookkeeping purposes must show adequate and accurate accounting for receipts and expenditures and the condition and disposition of

assets. At the same time, there must be sufficient uniformity between jurisdictions on the same level of government to permit comparison as a measure of relative efficiency. The summary accounts in the budget must be in accordance with the framework of account classification in the chart of accounts.

Immediate Problems Requiring Financial Decisions

A newborn municipality must face a number of all-important financial decisions. Procuring and determining the level of municipal services such as fire protection, library, street sweeping, hospital, cemetery, police, health, garbage disposal, sewer, park and recreation and public utilities are some examples. These services demand immediate action and financial data must be developed so a decision can be made as to what type of program will be best for the community interest in both the present and future. Considering the problems of fire protection, the financial director must determine the lowest overall community cost for maximum fire defense, after receiving advice from consulting authority as to the needs of the various areas of the community. Facilities, manpower, and equipment must be obtained in order to prevent both unreasonable fire loss and excessive cost for insurance.

To effect the best community position relative to insurance cost, a number of items must be given consideration in addition to a fire department. Improving water supply, a building code, electrical code, fire prevention code, and fire alarms are factors and important in case the insurance grading point total approaches the next higher grading. The insurance grading schedule is a means of classifying municipalities with reference to their fire defense and physical conditions. The total number of deficiency points charged against the municipality determines its relative classification and the area's insurance rate. Data must be made available to illustrate the possible insurance saving when determining the level of services and the cost of that level.

The application of "business sense" to municipal financial decisions should impel the financial director to investigate *all* possible methods and alternative programs to achieve the ends which have been mentioned and to report his findings in the best possible manner. The application of "business sense" differs from the usual "city sense" in that the business approach to the problem enables the financial director to research all manners of services, such as contracting with private agencies, contracting with other municipalities, mutual aid contracts, and other methods which can provide maximum services in the most economical manner. The "city sense" applies to the duplicating of the neighboring cities' or native city's approach to the same problem without study of cost consideration.

Researching possible alternative for fire protection programs results in several practical approaches from which the optimum can be chosen:

Plan 1—Contract with the local county agency for fire protection. Class 5 and 6 insurance rates would be in force.

Plan 2—Provide the minimum city fire department facilities which could utilize currently available water supplies. Subsidy in the form of tax rates would be minimized; however, Class 9 insurance rates would prevail.

Plan 3—Provide a city fire department of sufficiently high class to improve the community insurance grading, probably to Class 4. (This would be accompanied by simultaneous improvement in water services, fire alarms, building and fire prevention codes and enforcement, etc.).

Plan 4—Provide a medium city fire department capable of meeting the minimum first alarm response standards for most of the area. Under this, the present Class 6 insurance rates probably would apply.

Based on $60,000,000 of taxable values and full coverage on $135,130,000 potential insurable value at the base rates for commercial and frame construction, total community annual costs would range from about $619,500 for Plan 3 to $778,580 for Plan 1. These totals are equivalent to rates of 0.965 versus $1.29 per $100 of taxable values, as set forth in Exhibit 3. The result of this type of analysis, applied to each of the municipal activities independently

CITY OF SANTA FE SPRINGS

CHART OF ACCOUNTS
NUMBERING SYSTEM

FUND DESIGNATIONS

0 - General Fund
1 - Traffic Safety Fund
2 - Special Gas Tax Street Improvement Fund
3 - Engineering Aid Fund
4 - County Aid To Cities Fund
5 - Terradell Lighting District Fund
6 - Lakeview Lighting District Fund

ACCOUNT NUMBERS

1	to 25	Assets
26	to 40	Liabilities, Reserves, and Fund Balances
41	to 49	Budgetary and Operating Control Accounts
50	to 100	Revenues
100	to 900	Expenditures

EXPENDITURE OBJECT DESIGNATIONS

.10	to .19	Personal Services
.20	to .49	Contractual Services
.50	to .79	Materials and Supplies
.80	to .89	Other Charges
.90	to .96	Capital Outlays
.97	to .99	Debt Service

EXHIBIT 2

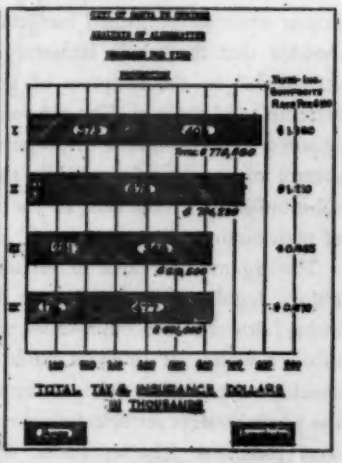

EXHIBIT 3

produces varied results and makes possible financial and policy decision most beneficial to the city, as depicted in Exhibit 4.

CITY OF SANTA FE SPRINGS

MUNICIPAL ACTIVITIES - Source of Operation

	City operated	Contract county	Contract other city	Contract private agency
Fire protection	X			
Library			X	
Street sweeping				X
Police		X		
Garbage disposal				X
Lighting maintenance				X
Water works				X
Sewers				X
Road maintenance				X
Park and recreation	X	X	X	X
Cemetery				X
Hospital				X
Ambulance service				X
Assessment and collection taxes		X		
Jail		X		
Health services		X		
Pound services		X	X	
City prosecution services		X		
Zoning and planning services	X			
Roadside tree trimming			X	X
Business licenses collection enforcement		X		

EXHIBIT 4

Preparation and Approval of the Budget

The Hoover Commission's reports of a few years ago have had a tremendous impact upon governmental budgetary thought. In effect, these reports recommended that the whole budgetary concept of the (Federal) government be refashioned by the adoption of performance budgets, based upon functions, activities, and projects. The old form of budget, with which we are all familiar, required the classification of proposed expenditures by "object" and "line-item" control of appropriations, while the Hoover Commission reports call for the substitution of a statement of the work to be performed and the related cost of performing such work.

The argument in favor of performance budgeting is that it permits administrators, legislators, and taxpayers to know what the money is buying and to make fairly accurate estimate of whether or not the people are getting their money's worth. It provides guide posts which indicate general direction. It should create happier relations between legislators and administrators, because the administrators are able to present their budget requests in terms of alternative work programs. The legislature, which wants to reduce expenses, will be told how such reduction can be realized in terms of work units rather than by a

flat percentage cut. The basis for controversy will be what work is to be done, or level of service, in terms of available funds. Political decisions are placed in the hands of the legislative authorities where such decisions belong. Of course, there will still be plenty of room for argument, but there will be constant effort to ascertain better ways of doing things, with the result that a common reservoir of work performance information will be available.

Budget planning, as well as all other types of planning, must be based upon information which can be obtained only by an orderly and accurate gathering of statistical data. This data, in order to be effective, must be as reliable and valid as dollars and cents accounting information. It seems inevitable that new city governments are going to have to do more and more planning. In order to carry on this planning, they will have to have more and more data about how many units of manpower and supplies are required to accomplish specific activities.

There is not general agreement in the field that all work and production can be categorized into measurable units; however, attempts can and should be made to relate some measure of productivity to dollars and cents, in order to be able to state level of service in measurable and comparative terms. At the work level,

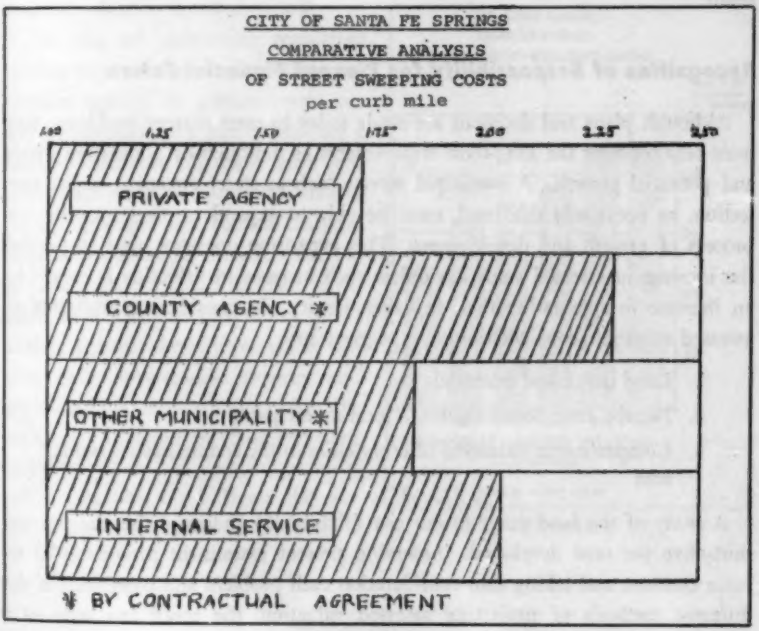

EXHIBIT 5

such work measurement should be stated in units of either work count or man-hours. At the legislative level, the breakdown would be in general categories. The essence of performance budgeting is the development of work-load statistics. If it is known that work loads, as determined by level of services, are increasing and if there is a staffing ratio, the number of people needed to carry on the activity can be ascertained with confidence and accuracy. Accurate statistical data can be developed to show cost per document, cost per case handled, cost per inspection, and the like. This statistical data must be accumulated and interpreted objectively. Through objectivity, rather than subjectivity, financial decision can be revolutionary.

To exemplify, let us consider the statistical studies and accumulations required when determining the best level of service for street sweeping. Our analyses were predicated on the anticipated service of one street sweeping per week in residential areas and daily sweepings in commercial areas. Studies were made to cover all possiblities including areas which would not commonly be considered by a municipality. The results, as reflected in Exhibit 5, indicated that, if private enterprise were the source, financial savings and increased services would result.

Recognition of Responsibility for Planned Financial Future

Although plans and decisions are made today to meet current problems, they must also consider the long-term requirements as indicated by population trends and potential growth. A municipal service such as street sweeping or fire protection, as previously discussed, must be able to expand to meet a continuous process of growth and development. This expansion does not need to parallel the increase in assessed valuation unless such increase in valuation is caused by an increase in area rather than in value density. In considering projection of assessed valuation, consideration must be given to:

1. Land usage and potential
2. Nearby areas zoned similar to local municipality
3. Comparison of valuation of other cities in the county having similar area

A study of the land usage in our city (Exhibit 6) indicated that the city was thirty-five per cent developed. Assuming present assessment procedures to remain constant and taking into consideration each problem and conditions of the different methods of projecting assessed valuation, the result can serve as a conservative guide to the city's expansion program.

CITY OF SANTA FE SPRINGS

ANALYSIS OF PRESENT LAND USAGE

ZONING	DEVELOPED Sq. Miles	%	UNDEVELOPED Sq. Miles	%	TOTAL Sq. Miles	%
Residential	1.2	41.38	.0		1.2	14.63
Commercial	.5	17.24	.1	1.89	.6	7.32
Industrial	1.2	41.38	4.0	75.47	5.2	63.42
Petroleum	.0		1.2	22.64	1.2	14.63
TOTAL	2.9	100.00	5.3	100.00	8.20	100.00

EXHIBIT 6

With the projected assessed valuation and land use determined, the financial director can estimate, with reasonable accuracy, the future tax rates or cost of each municipal service activity. In planning for future capital projects, expansion of industry, and new residential areas, this information can televise the future status of the city. Exhibit 7 reflects the cost of fire protection when correlated to the city's projected assessed valuation and the cost per hundred dollars of assessed valuation is also depicted.

The idea of contracting municipal services with another municipality, government agency, or private contractor may be revolutionary but, in making a financial decision, all these facts and possibilities must be made available to the city manager and council management by the financial director. The use of timely factual financial data, combined with scientific forecasting information, permits the city council to operate in a business-like manner and approach each activity on an objective basis, not following any trite and tired operation of an old decaying municipality. Just like any business the successful city is dynamic—never static.

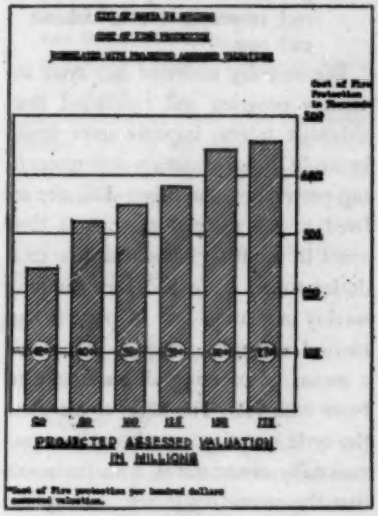

EXHIBIT 7

Using "Value Groups" in Cycle Counts

by LAURENCE I. BECKETT*

IN OUR COMPANY, with 50,000 or more parts to control and with inconsistent and sporadic low-stock periods in all these parts, we have found it necessary to formally program our cycle counting in order to obtain a high dollar level of coverage. This is required for two reasons:

1. The constant reference to stock record quantities requires them to be as accurate as possible.
2. The alternative of a complete physical inventory at our year-end is prohibitive in volume and cost.

We recently reviewed our cycle inventory program and concluded that, although minor improvements could be made in our counting and reconciling procedures, the prime difficulty related to the unusual amount of time spent in counting items with low total dollar values. We had been running weekly tabulating lists of parts in numerical sequence, designed to provide a means of covering all part numbers twice each year. The effort to complete the cycle counting on schedule was occasionally unsuccessful, with the result that the second cycle was incomplete. In addition, counting errors were made because of the haste involved.

As a remedy, the following method was designed to minimize the time spent on parts with relatively insignificant dollar values and to assure that most of the total dollar value was covered. Each six months, the inventory record cards are priced, extended and sorted into descending value groups and then listed, with cumulative sub-totals at the end of each group. All the cards in the first group, which equals at least 90 percent of the total inventory value, are selected for cycle counting. (It was found that only 40 percent of the total number of items was needed to account for the 90 percent value coverage.) The selected cards are then listed in part number sequence to provide a cycle inventory check list and are reproduced to provide cycle inventory tally cards.

The extreme variations in the quantity and total dollar value of some part numbers, i. e., parts which move in and out of the high-value group, is largely offset by the fact that we make new selection lists each six months. In addition, counts of low-quantity items are made automatically whenever stock requisitions are received for quantities in excess of existing stock, and back-orders are initiated.

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* Internal Audit Staff, Collins RadioCompany, Cedar Rapids, Iowa.

Beyond These Covers

Books

Ends and Means of Modern Management

American Management Association, 1515 Broadway, Times Square, New York 36, N. Y., Paper Bound, 158 pp., $3.75.

Designated as A. M. A. Management Report No. 30 and presenting addresses first offered before a general management conference at Los Angeles last January, this volume is background to specific areas of interest in management's current problems. Topics vary widely in the 16 contributions. Among them are "Business, Politics and Survival," "Some aspects of the Foreign Operations" and "Working Together at the Top."

Corporate Records Retention Vol. II

Controllership Foundation, 2 Park Avenue, New York 16, N. Y., 1959, 275 pp., $10.

Subtitled "a guide to Canadian federal and provincial requirements," this manual carries the scope of the presentation embodied in Vol. I (noted in the *Bulletin* for January 1959) "north of the border," largely in the interests of American firms operating in Canada. Volume III, is to cover State requirements in the United States.

The Gentle Art of Mathematics

Dan Pedoe, Macmillan Co., 60 Fifth Avenue, New York 11, N. Y., 139 pp., 1959, $3.50.

Commenting prefatorily that "The only apparatus a mathematician needs is a capacity for logical thought" and granting us charitably that "most people have this," Professor Pedoe has written a small book which does not so much simplify mathematical concepts and processes as it presents them in a studiously casual manner, as natural components of knowledge. Starting with "Mathematical Games" and ending with "What is Mathematics" the text runs through chapters unconventionally titled, e. g. "An Accountant's Nightmare."

Profit Sharing in Business and Estate Planning

George Byron Gordon, Farnsworth Publishing Co., Inc., 214 West 34th St., New York 1, N. Y., 64 pp., $3.50.

"Intended to open vistas upon what profit-sharing really is and what it can accomplish", this little book represents "profit-sharing to be a profit-making device which multiplies economic gains for everyone". Profit-sharing trusts receive a substantial share of attention.

Articles

Long-Range Planning—An Approach to Leadership

Gerald G. Fisch and Dean L. Jacoby, Cost and Management, April, 1959.

A list of the "whys" of long-range planning and lists also of steps to achieve it and ways to evaluate it are included in this paper, which is brief but specific in its content. Such planning is represented as providing "insight into coming business conditions and their requirements on company operations."

How to Assess Investment Proposals

Robert H. Baldwin, Harvard Business Review, May-June, 1959.

The discounted cash flow method of realistically evaluating many, perhaps most, capital outlay projects requires understanding of the concept and methodology of present value. To this, the article by Mr. Baldwin gives attention in its initial paragraphs, which are followed by application to rate of return determination for investment proposals.

Report of Committee on Electronic Data Processing

Robert H. Gregory (Chairman), Accounting Review, April, 1959.

"Business data processing is much broader than computing alone and the requisite equipment for it involves the people, procedures, and communication network to cover the gamut from data origination to report utilization." Summary in character and including a bibliography, this American Accounting Association Committee report, viewpoint of which is partly given in the foregoing quotation, includes suggestions as to course coverage, student background and qualification of instructors. It recommends that "accounting departments introduce courses dealing with business data processing and new equipment development."

Managerial Uses and Limitations of Uniform Dollar Accounting Data

Henry M. Steele, Accounting Review, April, 1959.

Whether accounting figures adjusted from historical dollars would be useful in price policy, wage negotiations, dividend policy, capital budgeting and dealings with the government are the moot points discussed in this article. A generally favorable conclusion is reached as to utility of such figures in most areas.

Basic Cost Accounting for Managerial Control

Wayne A. Arthur, The Controller, May, 1959.

Several unique features appear in this description of cost accounting in a company engaged in contract production in the electronic field. A main endeavor has been the subdivision of production accounts to represent like activities. All costs, including administrative, are assigned to production, largely to secure proper information for pricing.

Report of Committee on Management Accounting

Glenn A. Welsch (Chairman), Accounting Review, April, 1959.

"This purpose of this statement is to identify the nature, significance and related applications implied by the commonly used term, management accounting, and to note some of the related educational implications." A committee first appointed by the Executive Committee of the American Accounting Association in 1957 reports in this eight-page article which includes the foregoing prefatory comment.

Participative Planning in a Decentralized Organization

George E. Livings, Business Budgeting, April, 1959.

Well illustrated with organization charts, a planning schedule and a division profit plan, this article follows out briefly the workings of decentralization where profit planning is also a "cornerstone of management policy."

Should the Controller Govern the Content of Staff Reports?

Harold W. Fox, The Controller, May, 1959.

The question raised by this article relates to reports issued under the aegis of a newer concept of staff service, that of an analysis unit. The author gives no categorical answer to whether or not this trouble-shooting and decision data development should remain as securely under the controller's wing as periodical reports but he does give significant considerations pro and con.

Effective Budgeting Means Controllership in Action

Glenn A. Welsch, The Controller, June, 1959.

What budgeting means in terms of its potential place in the management process

the area to which this article, not particularly concerned with mechanics of budgeting, is devoted. "Fundamentally, budgeting represents a coordinated system providing for formalization of the management processes of planning and control" is a quotation typical of the viewpoint taken.

Future Developments of Electronic Data Processing Systems
Samuel N. Alexander

Auditing Automated Data Processing
Kenneth G. Cadomatori

Impact of Automatic Data Processing on Management
Charles R. De Carlo

This trio of articles on a highly current subject appears in the June 1959 issue of *The Federal Accountant.* All three of the papers were delivered as addresses at the Federal Government Accountants Association's eighth annual symposium. The view ahead, audit trail, and uses and installations are involved in these articles, as related to the employment of electronic equipment.

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